edited by

GUSTAVO G. POLITIS AND BENJAMIN ALBERTI



ARCHAEOLOGY IN LATIN AMERICA

Archaeology in Latin America

The archaeology of Latin America contains many unique features, both in focus and approach. This pioneering and comprehensive survey is the first overview of current themes in Latin American archaeology written solely by scholars native to the region, and it makes their collective expertise available to an English-speaking audience for the first time.

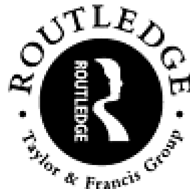
The contributors cover the most significant issues in the archaeology of Latin America, such as the domestication of camelids, the emergence of urban society in Mesoamerica, the frontier of the Inca Empire, and the relatively little-known archaeology of the Amazon Basin. Further subjects covered include hunter-gatherer studies, the political implications of the history of archaeology in Brazil, and the French theoretical influence on the region. The book also presents an account of Latin American social archaeology, probably the region's best-known theoretical product.

This book draws together key areas of Latin American archaeological thought into a coherent whole; no other volume on this area has ever dealt with such a diverse range of subjects, and some of the countries examined have never before been the subject of a regional study. A unique achievement, it will be essential reading for everyone engaged in the study of this fascinating region.

Archaeology in Latin America

Edited by

Gustavo G.Politis and Benjamin Alberti



London and New York

First published 1999
by Routledge
11 New Fetter Lane, London EC4P 4EE

Simultaneously published in the USA and Canada
by Routledge
29 West 35th Street, New York, NY 10001

Routledge is an imprint of the Taylor & Francis Group

This edition published in the Taylor & Francis e-Library, 2005.

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data
Archaeology in Latin America/edited by Gustavo G.Politis and
Benjamin Alberti.
p. cm.
Includes bibliographical references and index.
ISBN 0-415-13308-4. —ISBN 0-415-22158-7
1. Indians of South America—Antiquities. 2. Archaeology—Latin
America. 3. Indians—Antiquities. 4. Latin America—Antiquities.
I. Politis, Gustavo. II. Alberti, Benjamin, 1968–.
F2229.A7 1999
980 .01–dc21 99–15661
CIP

ISBN 0-203-98481-1 Master e-book ISBN

ISBN 0-415-13308-4 (Print Edition) (HB)
ISBN 0-415-22158-7 (Print Edition) (PB)

Contents

Figures

Tables

Contributors

Benjamin Alberti Departamento de Arqueología, Facultad de Ciencas Socialés (UNCPBA), Del Valle 5737, 7400 Olavarría, Argentina.

Duccio Bonavia Laboratorio de Prehistoria y Departamento de Biología, Universidad Peruana 'Cayetano Heredia', Apartado 4314, Lima 1100, Peru.

Luis Alberto Borrero Departamento de Antropología (UBA) and Programa de Estudios Prehistóricos (PREP-CONICET), Bartolomé Mitre 1970, 5to. 'A', 1039, Buenos Aires, Argentina.

Pedro Paulo A.Funari Cx. Postal 6110, Unidade 189H, Universidad Estadual de Campinas, Cidade Universitária 'Zeferino Vaz', CEP 13083–970, Campinas-SP, Brazil.

Cristóbal Gnecco Departamento de Antropología, Universidad del Cauca, Popayán, Colombia.

José Luis Lanata Departamento de Antropología (UBA) and Programa de Estudios Prehistóricos (PREP-CONICET), Bartolomé Mitre 1970, 5to. 'A', 1039, Buenos Aires, Argentina.

Carl Henrik Langebaek R. Departamento de Antropología, Universidad de los Andes, Santafé de Bogotá, Colombia.

José M.López Mazz Departamento de Antropología, Universidad de la República, Montevideo, Uruguay.

Linda Manzanilla Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México, Ciudad Universitaria Circuito Exterior, México DF 04510, México.

Eduardo G.Neves Museu de Arqucologia e Etnologia, Universidade de São Paulo, Avenida Prof. Almeida Prado 1466, Cidade Universitária, CEP 05508–900, São Paulo-SP, Brazil.

Gustavo G.Politis Departamento de Arqueología, Facultad de Ciencias Socialés (UNCPBA), Del Valle 5737, 7400 Olavarría, and Departamento de Arqueología, Facultad de Ciencias Naturales y Museo de La Plata (UNLP), Paseo del Bosque s/n, 1900 La Plata, Argentina.

Rodolfo Raffino Departamento de Arqueología, Facultad de Ciencias Naturales y Museo de La Plata (UNLP), Paseo del Bosque s/n, 1900 La Plata, Argentina.

Mario Sanoja Instituto de Investigaciones, FACES, Universidad Central de Venezuela, Apartado 47372, Caracas 1041-A, Venezuela.

Rubén Stehberg Departamento de Arqueología, Museo Nacional de Historia Natural, Casilla 131 (Correo Central), Santiago, Chile.

Iraida Vargas Arenas Instituto de Investigaciones, FACES, Universidad Central de Venezuela, Apartado 47372, Caracas 1041-A, Venezuela.

César Velandia Museo de Arqueología, Universidad del Tolima, Ibagué, Colombia.

Preface

This book captures the diversity of the practices and theoretical orientations in Latin American archaeology. Its main goal is to deliver knowledge of these diverse approaches to a wider audience than has usually been possible, especially to those who do not speak Spanish or Portuguese, for a vast quantity of information, ideas and analyses produced by Latin American archaeologists remains relatively unknown to scholars outside the region. This situation is due not only to the problems of language, but also to the inaccessiblilty and lack of diffusion of the publications— many of which are produced by local universities and museums —in which this work appears. Raw data and basic information are sometimes introduced into international debate, but very rarely do the ideas and models developed by Latin American archaeologists receive the same attention. A good example is the question of the peopling of the Americas, in which the data from the southern hemisphere cannot be ignored, yet the only models and interpretations discussed in the literature outside Latin America are North American and Western European. What this book hopes to achieve is to reduce the relative invisibility of the theoretical trends and ideas put forward by Latin American archaeologists.

Bearing the above in mind, we approached Latin American archaeologists working on key issues in the archaeology of the region, or developing innovative approaches to specific problems or data sets. We solicited papers concerning the history of archaeology and different themes in the archaeology of various regions, and others which reflect a growing theoretical corpus of work specific to Latin America. Of course, it is not possible to cover all the many themes and issues in Latin American archaeology in one volume. Nonetheless, we feel that the current papers are a representative sample of the contemporary status of archaeological research in the region, a sample which further enables one to envisage the future directions of the discipline.

The type of diversity of approaches in Latin American archaeology is distinct from that of North America and Europe. The particular history of the development of archaeology in the various countries and regions of Latin America has led to a regionalism not matched in North America and Europe. Theoretical influences, regional developments and the changing political position of Latin America in a world context, especially in the twentieth century, have created a scenario in which theories crystallised quite differently from their places of origin. Consequently, the approaches discernible in Latin American archaeology represent a less 'pure' version of such theories. Even though Latin American archaeology can be characterised as being more empirical than theoretical, some methodological and theoretical approaches have been produced. In contrast to Europe and North America, this output is based in the work of individual scholars spread throughout Latin America, rather than the concerted production of a particular institution or country.

The only exception to this is Latin American social archaeology, developed in Venezuela, Mexico, Peru and some of the Caribbean islands during the 1970s. Whether or not it can be considered the dominant

paradigm in these areas, or whether it has been fruitfully applied in an archaeological case study, its theoretical originality in the discipline is undeniable. Theoretical production—or at least the reworking of theories produced elsewhere—as well as methodological improvements and empirical output, occurs throughout the region, embedded in a variety of distinct conceptual frameworks. This book is an attempt to bring to light part of this work in a coherent fashion, and make it available for debate to a non-Spanish/Portuguese-speaking audience.

This book is one of the results deriving from the long-term grant from the British Council and the Fundación Antorchas (Argentina), which was given in 1992 to one of us (GP) and to Clive Gamble (University of Southampton), in order to develop co-operative research projects and to increase the scientific links between Great Britain and Argentina. The unique possibility provided by both granting agencies created the opportunity for the development of this kind of endeavour. We are extremely grateful, therefore, to both the British Council and the Fundación Antorchas for their continuous and significant support.

The original impetus for the book arose in 1994, when one of us (GP) was conducting research under the auspices of the above grant-providing bodies, and was also teaching a course on Latin American archaeology at the Department of Archaeology, University of Southampton, while the other (BA) was completing a doctoral degree in the same Department. During the course it became apparent that there was a lack of literature written by Latin American authors and available in English. Moreover, the few articles that were available were produced following a standard Anglo-American format addressing similar themes, and using identical methodological tools. In such cases, the original style of writing of the Latin American authors, the variety of perspectives, and the focus on different research problems vanished. Editorial policies, the thematic priorities of editors soliciting work, and the legitimation of particular subjects and approaches in the Anglo-American establishment, force Latin American authors to conform to Anglo-American standards. That is why this book tries to maintain the various styles of the authors of presenting data and ideas, as well as to leave them free to approach the problem in their own manner. On these premises rests the originality of the current volume.

The project really gained momentum with the involvement of Peter J.Ucko, at that time Dean of Arts at the University of Southampton, who encouraged and motivated us and also provided the original contact with Routledge. We acknowledge him as the driving force behind this exhausting, yet immensely fruitful, endeavour.

The book would not have materialised at all, however, without the help and infrastructural support both of our institutions and of many individuals. We would especially like to thank the Department of Archaeology, University of Southampton, the Division Arqueología de la Facultad de Ciencias Naturales y Museo de La Plata, and the Departamento de Arqueología de la Universidad Nacional del Centro de la Provincia de Buenos Aires; we acknowledge also Karina Obregón, Natalia Carden, Jorge Moirano and Christine Olechea for help at various stages in the editorial process.

Finally, we hope that this book will contribute to the expanding knowledge of the archaeology of Latin America from a different perspective—a perspective deeply related to the motivations, feelings and desires of the archaeologists living and working there.

Gustavo G.Politis and Benjamin Alberti
1 October 1998

Chapter One
Introduction
Latin American archaeology: an inside view

Gustavo G.Politis

Archaeology in Latin America is the result of national and regional developments, and in no way can it be considered an homogeneous process or a compact set of related concepts and theories. When I refer to Latin American archaeology in this chapter I am including only the archaeology carried out in Latin America by Latin American scholars or by foreigners who have lived in the region over a long period of time (some of whom obtained their degrees in Latin America) and have been incorporated into the local scientific communities. I distinguish this type of archaeology from that practised in Latin America by foreign scholars who neither live in the region nor share the cultural idiosyncrasies of the country in which they are researching. The most striking example of the second case are the hundreds of North American archaeologists who are working in Mesoamerica or the Central Andes. While they undoubtedly help significantly towards the increase in knowledge of the indigenous past of the countries where they work, and have made relevant theoretical and methodological contributions, they cannot be considered Latin American archaeologists. Their tradition of research is another, their perception of reality is different, and their focus, therefore, necessarily differs greatly from that of archaeologists who are researching the places where they were born and grew up, and where they have subsequently held professional positions.

Latin American archaeology is diverse and heterogeneous, as is to be expected of a region with great cultural diversity. In spite of the fact that the majority of countries have a Spanish or Portuguese colonial background, the divergence in their historical development and socio-political contexts has led to distinct regional and national archaeologies. Is this diversity more profound than in other continents, such as Europe? The chapters included in this book will help to answer this question, since they demonstrate the variety not only of subject matter, but also of methodological approaches and theoretical frameworks in the region. Recent scholarship has highlighted how regional archaeological traditions in other parts of the world have developed, and how they are deeply influenced by their socio-political contexts (Trigger 1992; Ucko 1995). In the case of Latin America, very few attempts have been made to understand the regional processes of growth and development of archaeology (for exceptions see Oyuela-Caycedo 1994; Politis 1995), although histories of national archaeologies have proliferated in the last two decades, often written from very different perspectives. Some accounts have concentrated on strictly scientific and theoretical issues (Collier 1982; Fernández 1982; Fernández Distel 1985; Cabrera Pérez 1988; Mendonça de Souza 1991; Fernández Leiva 1992; Orellana Rodríguez 1996) and have taken the format of chronological narratives of specific events, incidents, and the contributions of local archaeologists as well as foreigners. Others have noted the social history of the discipline (Gnecco 1995; Funari 1992 and chapter 2 in this volume; Lorenzo 1981; Politis 1992, 1995) or have specifically focused on the theoretical influence of science in the country in question (Lorenzo 1976; Burger 1989; Barreto 1998). The proliferation of work on national archaeologies is one consequence of the necessity for reflection on and analysis of the construction of knowledge of the past, of realising how social and political factors mould the practice and theory of archaeology, and of the distancing

of archaeology from supposed positivist objectivity (Gathercole and Lowenthal 1990; Ucko 1995; Kohl and Fawcett 1997).

TRENDS WITHIN THE REGION

In spite of the degree of diversity, the archaeology of Latin America has some shared characteristics. Although the recognition of these traits is essentially subjective and based on personal experience and an unequal knowledge of the different situations within the region, such traits can serve both to identify the main trends in the region and as a way in to an understanding of the construction of archaeological knowledge. Those with different personal experiences and perceptions of the current situation may disagree; consensus in a discussion of the present subject, where the participants are embedded in the context of the discussion, is as illusory as reaching the end of the rainbow.

Firstly, Latin American archaeology is largely empiricist. Although there are a few original theoretical approaches, such as Latin American social archaeology (see Vargas Arenas and Sanoja, chapter 4 in this volume), and serious attempts have been made to incorporate and develop some North American and European methodological and theoretical perspectives (see, for example, Lanata and Borrero, chapter 5; Manzanilla, chapter 6; Langebaek, chapter 12; Velandia, chapter 10, all in this volume), the practice of archaeology within the region remains heavily empirically grounded. The recovery of original data by means of survey, test pits and excavation is the initial activity of most research projects. Analysis of the recovered material and of the spatial and chronological distribution of sites and finds is usually the second step. Interpretation and the placement of the finds in the context of past 'cultures', or in an archaeological unit (such as a 'phase', a 'tradition' or an 'industry') is frequently the final goal. A typical case is provided by Brazil, where complaints about the lack of theory and of the suitability of contemporary methods are an urgent plea shared by a young generation of archaeologists (Funari, chapter 2; Goes Neves, chapter 11), one of whom has recently made a very clear and strong statement to that effect:

> Ironically, the strong influence of foreign schools (both French and North American) while producing many advances, has also left Brazilian archaeology in a theoretical vacuum and a methodological straitjacket.
>
> (Barreto 1998:574)

Secondly, Latin American archaeology is basically culture-history orientated. Culture-history has been the dominant approach in the region as a result of what has been defined as the 'Classificatory-Historical Period' (Willey and Sabloff 1980), an era when the main objective of (North) American archaeologists was the cultural synthesis of the various regions of America. Latin American archaeology followed this trend, especially after World War II, when North America consolidated its hegemony in the area which came within its political and economic sphere of influence. Political and economic involvement was accompanied by an increased cultural influence on Latin America, and within this general socio-political background culture-history became the dominant theoretical framework for archaeological research. Without a doubt, Julian Steward's (1946–50) monumental study in *The Handbook of South American Indians* constituted the first large-scale attempt to interpret the archaeology of South America (Roosevelt 1991); numerous archaeologists, very few of whom were Latin American, were appointed to contribute to this project of systematisation. Among the contributors, Alfred Métraux (see Lopez Mazz, chapter 3) was perhaps one of the most important, as he also influenced the general approach adopted in the volume (Perez Gollán, *pers. comm.*)

The culture-historical approach had a direct impact on the archaeology practised in several countries in Latin America—archaeological finds were organised into a framework of cultures and periods; ceramics were compartmentalised into styles, and artifacts into complexes (see, for example, Bennett *et al.* 1948 in the case of Argentina, and Cruxent and Rouse 1958 for Venezuela). Contemporaneously, the North American tradition of research in the Central Andes (the so-called *'peruvianistas'*), although diffuse in origin, crystallised in 1946 at a conference entitled 'Reappraisal of Peruvian Archaeology' (Schadel and Shimada 1982). At the same time, the multidisciplinary Virú Valley Project, which claimed to be an holistic study of the complete culture of a Peruvian valley, was taking place (Willey 1946). The project also attempted to go further than a culture-historical reconstruction by emphasising 'function and context' and by searching for causal generalisations (Schadel and Shimada 1982).

Most local archaeologists followed the trend established by the introduction of North American culture-history, although the influence of British culture-history, mainly through the work of Gordon Childe, was felt in some areas. The Austro-German *Kulturkreis* school and a variety of French trends were also influential (Funari, chapter 2; Lanata and Borrero, chapter 5; López Mazz, chapter 3; Barreto 1998; Politis 1995), although in a thematically and geographically restricted manner. However, none of these theoretical trends have been able to challenge the overwhelming influence that North American culture-history has had on Latin American archaeologists.

Another milestone in the dynamic of the interrelationship between Latin American and North American archaeology was the publication of a volume in the Smithsonian Miscellaneous Collection entitled *Aboriginal Cultural Development in Latin America: An Interpretative Review,* edited by Betty Meggers and Clifford Evans (1963). This publication had as its goal the summary and interpretation, from a marked culture-historical perspective, of the indigenous past of Latin America. The editors clearly expressed their objectives in the prologue:

> Whether the interpretation survives the test of time is less important than the fact that archaeologists from nine countries have been able to collaborate in the solution of the problem that is our common goal—the reconstruction of cultural development in the New World.
>
> (Meggers and Evans 1963:vi)

There are two important points to be stressed. Firstly, cultural diffusion plays a key role in the book on an explanatory level. The appearance of pottery on the Ecuadorian coast, or the domesticated cotton of the Peruvian coast, were interpreted as the result of transpacific contact; migration was used as an explanation for the 'striking resemblance' between the Olmec and Chavín styles of art. Secondly, of the fourteen authors, half are Latin Americans—a more balanced proportion than in *The Handbook of South American Indians,* although it should be pointed out that these Latin American authors were strongly influenced by the culture-history approach.

Due to its empirical roots and culture-historical focus, it is not strange to note the existence of a very modest post-processual debate in Latin American archaeology, where current change is actually more towards processualism. However, it is important to recognise that processualism and post-processualism (or interpretavism) are labels whose contents have been the subjects of debate (see, among many others, Shanks and Hodder 1995; Whitley 1998), and although they undoubtedly represent different theoretical positions, there are overlaps (Kosso 1991) and the internal differentiation of each approach makes a binary distinction an over-simplification.

For the sake of the current discussion, let us consider that processual archaeology is rooted in behaviourism allied with positivism, and that it maintains a 'systemic view of culture' which awards the

environment a determinant role in cultural change (Trigger 1992; Whitley 1998). This is probably the major direction in which contemporary Latin American archaeology will move when it decides to leave its culture-history framework, as is becoming clear through the numerous research projects which are orientated towards adaptative studies, site formation, taphonomy, and other derivatives of a processual approach.

The exploration of a post-processual alternative is more diffuse and less firmly rooted. Some aspects of post-processual archaeology have been present for a long time in many archaeological studies by Latin American archaeologists but have not been formally developed as such, and are usually tied to nationalist programmes (e.g. Lumbreras 1974). The explicit political and social involvement of academia in some countries (e.g. Peru, Mexico and Cuba) produced the kind of critique of a politically responsible archaeology that has occurred relatively more recently in North America and Great Britain. Moreover, because of the existence of large indigenous populations and popular social movements in several Latin American countries, some aspects of a post-processual critique—for example issues concerned with ethnicity, indigenous rights or multivocality—appear to be much more immediately relevant than other issues, such as gender. Gender archaeology is poorly developed in Latin America when compared with North America or Western Europe; of the little work accomplished, the majority has been carried out by foreigners (e.g. Gero 1991, 1992; Joyce 1996). Some examples of 1990s post-processualism can be seen in the analysis of the ideological and moral dimensions of the reconstruction of the indigenous American past (see Gnecco, chapter 13), or in the structuralist analysis of the archaeological culture of San Agustín (see Velandia, chapter 10).

Nonetheless, it would be unfair to see Latin American archaeology as a passive reflection of foreign, essentially North American, influence. There have most certainly been local archaeologists who have developed original methods, although obviously their contributions have been fed by foreign theories and methods since, as with any researcher in the world, Latin American archaeologists practise within open scientific communities and are exposed to intellectual movements generated in other countries. A few examples will suffice to illustrate these specific processes in several different Latin American countries.

Amongst the examples from the nineteenth century, Florentino Ameghino is notable in the case of Argentina. Ameghino represented the typical nineteenth-century naturalist who worked simultaneously from several different disciplines: archaeology, bio-anthropology, palaeontology and geology. He produced relevant contributions to all these fields, one of the most important being *La Antigüedad del Hombre en el Plata* (‘The Antiquity of Man in the Plata’) (Ameghino 1881), which constituted from an evolutionist perspective the first review of Argentinian and Uruguayan archaeology, and produced the momentum for typological and zooarchaeological studies whilst also forming the foundation for regional stratigraphical analyses. After his death in 1911, the image of Ameghino was appropriated by political sectors of society, especially the Socialist Party, who made him appear to be a secular saint (Podgorny 1997).

In Chile, José Toribio Medina (1882) published a monumental synthesis of Chilean prehistory based on his own fieldwork and archival research which he had published in articles since 1842. Medina’s book was among the first syntheses of the archaeology of a single country in Latin America, and he adopted a multidisciplinary approach (Orellana Rodríguez 1996). As early as 1878, the Archaeological Society of Santiago had been formed in Chile and, two years later, it published the one and only edition of its journal of archaeology. A principal objective of these local scholars was the summary of archaeological information—until that moment fairly diffuse— which existed in their respective countries, and to explain that material using various methods, ranging from direct historical analogy to natural evolutionary approaches.

In the first half of the twentieth century, the outstanding character of Julio Tello has been considered not only ‘the father of Peruvian archaeology’, but also ‘one of the great paradigms of Peruvian history’ (Chávez Valenzuela 1997:5–6). He was an exceptional person: born to an Indian family in the Central Highlands of

Peru, he received a Masters degree in Anthropology from Harvard University at the age of twenty-one, and later studied in the great museums of France, Germany and England (Daggett 1992). Tello has been glorified not only for his scientific achievements but also for his active participation in the Latin American indigenous political movement. In the field of archaeology, besides the discovery and study of numerous monumental sites in the Central Andes (Chavín and Cerro Sechín, amongst many others), Tello disputed Uhle's diffusionist hypothesis concerning the origin of the Andean civilisations'. For Uhle, the Andean cultures were 'products detached from a Central American trunk' or 'peripheral branches of the ancient Mayan expansion' (Amat Olazábal 1997:10); Tello refuted this idea and transformed the 'autochthonism of the Andean culture' into a 'standard-bearer' (Amat Olazábal 1997:10). Tello's proposals acquire special significance by virtue of their non-conformist character: in the first decades of the twentieth century Latin American archaeology was dominated by the prestige associated with a generation of European (essentially German) scholars (Politis 1995). Moreover, Tello was far less enthusiastic about the utility of the 'horizon' concept introduced by Uhle in the beginning of the century (Willey and Phillips 1958) than were his foreign colleagues, a stance adopted by subsequent Peruvian scholars (Moseley 1994). When Tello died in 1947, his body was kept in the Museo Nacional de Antropología de Lima, and conducted to the cemetery with honours usually reserved for ministers of state. Libraries, streets, plazas and schools have since been named after him. Tello was unique in Latin America—the only archaeologist who became a scientist/politician/ indigenous hero, he was seen as 'a representative of the indigenous population, and a messenger from the Amautas, the descendants of the ancient Inca Empire' (Mejía Xesspe, in Tello 1967:3).

In Mexico, the prominent local figure in the first half of the twentieth century was Manuel Gamio, who graduated from the Universidad de Columbia and can be considered a disciple of Franz Boas (Bernal 1979), who was also decisive in the emergence of Mexican archaeology. Gamio made original theoretico-methodological contributions to American archaeology: he was a pioneer of the stratigraphic method and he developed an archaeological investigation which was intimately linked to an anthropological perspective. The role he played in the 'stratigraphic revolution' has been seen by North American archaeologists in various ways. For some, Gamio, along with N.C.Nelson, was responsible for this innovation (Willey and Sabloff 1980), while for others his significance was secondary (Lyman *et al.* 1997). The publication of his research at Teotihuacan (Gamio 1922)—excavations on a grand scale, complete with works of reconstruction —was transformed into the 'first great consciously anthropological project carried out in Mexico' (Bernal 1979:163) and crystallised Gamio's vision of archaeology as an integrated discipline deeply grounded in anthropology. It must be pointed out that Gamio completed a multi-disciplinary study of Teotihuacan from its pre-Hispanic origins up to the present day, as well as conducting an analysis of the colonial period. The situation of Teotihuacan as the axis of Mexican archaeological research interest continues (Manzanilla, chapter 6) due to its position as the first vast urban centre in Mesoamerica.

Gamio was a product of the Mexican revolution which had promoted nationalism and the reaffirmation of everything Mexican, and as such he played a pronounced political role alongside the contributions he made to archaeology. He was a promoter of the Latin American indigenous movement and, along with other social scientists, attempted to revitalise and revalorise the indigenous and peasant aspects of Mexican society. In order to dignify the present-day indigenous and peasant communities, Gamio considered it necessary to study their current situation, their origins and their past (Lorenzo 1976). Archaeology was an instrument of social change for Gamio, and its practice was highly intertwined with the interests of the exploited peasantry.

In the second half of the twentieth century some Latin American archaeologists developed original archaeological methods which partly reflected foreign influences, but which were also a product of a political involvement in research of a generation of scholars who had novel perspectives to bring to

archaeology, and interests in specific themes. Alberto Rex González, José Luis Lorenzo, and Gerardo Reichel-Dolmatoff can be included within this group of researchers.

Alberto Rex González received his archaeological education from the University of Columbia (USA) and has followed a broad trajectory of research in Argentina since the 1940s, during which time he has become involved in many different fields of archaeological inquiry and tackled problems with various different conceptual tools. He cannot be considered a typical product of North American culture-history, although the influence of this school is very clear in his early work in northwest Argentina (González 1961, 1963). In his more recent publications he has explored structuralist and symbolic approaches, reflected from the 1970s onwards in the development of an intensive study of the pre-Columbian art of Argentina (1977), as well as in a symbolic analysis of Andean metallurgy (González 1992), and in his examination of the mortuary practices of the historical Araucanos from a cross-cultural perspective (1979). His influence on contemporary Argentinian archaeology is outstanding, especially in the northwest where his regional model is still central to contemporary debate.

Although Spanish by birth, José Luis Lorenzo lived his entire academic life in Mexico, and maintained a critical perspective on North American archaeology as it was practised in the country. He pointed out the basic difference in position of the two scientific communities: while the North Americans practised an archaeology of an intellectual and academic character, the Mexicans added a social and historical dimension (Lorenzo 1976). Lorenzo was influenced by V. Gordon Childe, with whom he spent a short period in London. This influence undoubtably resulted in an original perspective in Mesoamerican archaeology, using, for example, Childe's concept of a 'neolithic revolution' (Lorenzo 1961). It is important to mention that Mexican archaeology had been strongly shaped by the Spanish Republicans—Angel Palerm and Pedro Armillas—who spent almost their entire careers in Mexico, and paved the way for Lorenzo to develop his particular approach.

Gerardo Reichel-Dolmatoff, who was born in Austria, arrived in the late 1930s in Colombia, where he established his scientific career (Chavez Chamorro 1986) and went on to become the founder of the first department of archaeology in the country at the Universidad de los Andes. The scientific activity of Reichel-Dolmatoff and his wife, Alicia Dussán, was immense, for they had undertaken a monumental task: a time-space systematisation for the majority of the archaeological areas in the country, with the exception of the Orinoco and Amazon Basin (Gnecco 1995), although most of their research was actually centred on the Atlantic coast. Two areas stand out amongst Reichel-Dolmatoff's contributions to Latin American archaeology: firstly, his pioneering use of ethnographic analogy to explain archaeological material (based on his extensive ethnographic knowledge of Colombian indigenous societies) and, secondly, a marked use of diffusionism from an excessively mechanistic understanding of history (Gnecco 1995). For better or worse, the influence of Reichel-Dolmatoff continues to be significant in Colombian archaeology.

After the death of Tello, Peruvian archaeology produced an important group of archaeologists who established themselves in the country and who were 'strongly influenced by North American specialists in Peruvian archaeology' (Burger 1989:38). This group was composed of Luis Lumbreras, Duccio Bonavia (see chapter 7), Rosa Fung, Roger Ravines and Ramiro Matos, whose activities remain significant today. Luis Lumbreras (1974) explored the social dimension of the practice of archaeological research—following the tradition initiated by Tello—and became one of the founders of Latin American social archaeology (Vargas Arenas and Sanoja, chapter 8).

The leaders of Latin American social archaeology, who are based in several different countries (for example, Felipe Bate and Manuel Gándara in Mexico, Luis Lumbreras from Peru, Iraída Vargas Arenas and Mario Sanoja from Venezuela, Marco Veloz Maggiolo from the Dominican Republic), must be considered the generators of an original current of thought, clearly orientated towards Marxism and crystallised in the

revolutionary movements of the 1960s, although their roots are hidden in the indigenous intellectual movements of the turn of the twentieth century (Patterson 1994), and they acknowledge the works of V.Gordon Childe as their principal inspiration (Vargas Arenas and Sanoja, chapter 4). Latin American social archaeologists 'reject the mechanical or materialist form of cultural evolutionism and…adopt a realist ontology' (Patterson 1994:533). One of their fundamental aims is to

> insert the discipline within the social sciences in order to achieve the reformulation of the epistemological basis for education and the teaching of history—what we consider to be the fundamental part of the national consciousness of a society formed and informed by its history and its destiny as a sovereign community within the integrated context of a new Latin America in the making.
> (Vargas Arena and Sanoja, this volume: 60)

Few would doubt the originality of this school, but their importance in the context of Latin America and the coherence of their techniques, methods employed, and their theoretical-conceptual approach have been the subject of recent debate. Outside Latin America the theoretical production of Latin American social archaeology has been largely ignored; only recently has it been discussed in Spain, Portugal and, to a much lesser extent, Great Britain. However, for the North American Marxist archaeologists the development of social archaeology has been an impressive achievement of the last twenty years and they attribute an important role to this school of thought in the recent history of the archaeology of Latin America (e.g. McGuire 1992; Patterson 1994). Some Latin Americans have taken a critical stance concerning the importance of the school in a regional context, one of the strongest criticisms being that

> it is apparent that there is no such thing as a 'Latin American Social Archaeology'. The practising social archaeologists (Bate, Lumbreras, Sanoja, Vargas) have not created a single school of thought, with the exception of Venezuela…
> (Oyuela-Caycedo *et al.* 1994:371–2).

These critics further argue that even though the work of the social archaeologists is known in the majority of Latin American countries, 'it has never passed beyond the level of intellectual coffee house or *mate* discussion' (Oyuela-Caycedo *et al.* 1994:371).

More moderately, doubts have been expressed about the viability of the objectives of social archaeologists within a Marxist perspective in relation to the methodology employed in the handling of the archaeological record (Lanata and Borrero, chapter 5; Gnecco 1995; Politis 1995). In the case of the study of Latin American hunter-gatherers, the contribution of the social archaeologists has been minimal, and it has been suggested that 'the language [of social archaeology] is different but…the result is a purely theoretical stance which is difficult to reconcile with the archaeological record' (Lanata and Borrero, this volume: 78). The work of the social archaeologists on food-producing and state-level societies has been stronger (e.g. Lumbreras 1989; Sanoja and Vargas Arenas, chapter 8; Veloz Maggiolo *et al.* 1981) and it is within such studies that it is possible to evaluate whether the proposed objectives have been achieved with the methodological tools used, or whether a large gap still exists between the high level of abstraction and the interpretation of the available archaeological evidence.

THE SINGULARITY OF THE PRE-COLUMBIAN CULTURAL PROCESSES IN LATIN AMERICA

Although there are certainly similarities with the cultural development of other parts of the world, some social processes in Latin America are clearly the product of singular historical developments whose end results appear to be specific and original. Again, this need not mean that these are unique social phenomena (obviously the increase in social complexity and the formation of state-level societies or the domestication of camelids are, for example, phenomena which one can recognise in various parts of the world), but even so, in the case of Latin America, there are particular contexts brought about through distinctive social processes. This book analyses some of those processes which have been the subject of recent debate.

Few animals were domesticated by the indigenous Americans (basically, the llama, alpaca, guinea pigs and the muscovy duck), and in general terms, with the exception of camelids, such domesticates did not have the importance afforded to their counterparts in the Old World. Nonetheless, the camelids, and especially the llama, were not only a source of meat but also of wool, dung for fertiliser and fuel (an important resource in an environment such as that of the high Andes where firewood is always scarce), as well as acting as beasts of burden. Camelids were vitally important to the subsistence of the pre-Hispanic Andean societies, and also played an important role in their cosmological beliefs (see Bonavia, chapter 7). After discussing the various sources of evidence and different hypotheses associated with camelid domestication Bonavia (this volume: 142) concludes that

> all the information indicates to us that llamas and alpacas were domesticated in the high Andes between 4,000 and 4,900 m above sea-level, approximately in the fourth millennium before our era.

However, as Bonavia states, the ancestral form of camelids from which the llama and alpaca were domesticated, and the fundamental reasons for domestication, are as yet unknown. The involvement of camelids in Andean social processes is also a subject currently under debate.

The emergence of a complex urban society at Teotihuacan (Manzanilla, chapter 6) in central Mexico reveals a quite different pattern of urban development to that in the Old World. Urbanism in both Mesoamerica and the Andes was the result of particular historical processes which can be traced back to the Formative Period. Manzanilla (chapter 6) demonstrates how Teotihuacan resulted from the expansion of urban life in well-planned cities during the Classic Horizon in Mesoamerica (the first nine centuries AD) and how this urban centre was 'the pilgrimage centre *par excellence,* the place where sacred space and time were created, the archetype of the civilised city' (Manzanilla, this volume: 93).

The rapid expansion of the Inca Empire is a case unique in the world (Raffino and Stehberg, chapter 9). It is one of the few known examples of conquest by foot, with the use of llamas for cargo but not for transporting people (Bonavia, chapter 7), achieving in such a short time the domination of such a mountainous, expansive and environmentally diverse area. The motives and intrinsic characteristics of expansion are still debated (Raffino and Stehberg, chapter 9; Hyslop 1984; Lorandi 1988; Morris and Thompson 1983; Schadel 1978), although it remains an astonishing fact that in less than a century, between AD 1438, when Pachakuti initiated the expansion, and AD 1520, when Pizarro's troops arrived in the north of the Empire, the Incas established a territorial dominion of 1,700,000 km^2 (Raffino and Stehberg, chapter 9).

The Amazon Basin has been a favourite area for discussions of the dominant role of the environment in the stability and change of human societies, and is one of the places in Latin America where North American cultural ecology has had a marked influence (Steward 1948; Lowie 1948; Meggers and Evans 1963). Recently, however, applications of so-called 'historical ecology' (Balée 1994) and new

archaeological interpretations (Roosevelt 1980) have challenged the domination of cultural ecology. Goes Neves (chapter 11) shows how archaeological research in the Amazon Basin is changing, and he critically discusses the theoretical frameworks used to reconstruct the Amazonian past. Goes Neves shares the view of a young generation of Brazilian archaeologists (Funari, chapter 2; Barreto 1998) who lament the poor methodological production generated by PRONAPA (Programa Nacional de Pesquisas Arqueológicas na Bacía Amazónica), a programme of Brazilian archaeological studies promoted and supported by Betty Meggers and Clifford Evans. Meggers and Evans have been extremely active in developing training programmes and workshops both in the United States and in various South American countries and, as such, they have not only created a close-knit group of South American collaborators, but have facilitated the acquisition of research grants. Evans and Meggers have been criticised recently for creating a'feud' in Amazonian archaeology (Roosevelt 1991:105), and the debate has become openly political with comments no longer constrained to 'purely academic' matters (Funari 1991; Roosevelt 1991; Meggers 1992a, 1992b). Furthermore, it is fair to say that in the countries where their influence has not been as significant, such as Argentina and Chile, Betty Meggers has nonetheless had tribute paid to her by the local archaeological communities in recent years.

The pre-Columbian metallurgy of Latin America has always been an attractive subject for archaeology, although its profound and actual symbolic meaning has not been intensively analysed (Letchman 1979). In very few cases were metal artifacts used as tools in Latin America, and almost all their development was within the social and symbolic domains. A recent study by González (1992) has demonstrated how the southern Andean metal plaques functioned as representations of the complex relationships between the Andean gods. Langebaek (chapter 12) analyses and discusses, from a novel perspective, two assumptions usually made by archaeologists: that metallurgy has had an important role in the development of social complexity; and that the elaboration of impressive gold objects can be used as a measure of social complexity. The examples from Colombia prove to be an interesting case study in which both assumptions are put to the test.

FINAL CONSIDERATIONS

Latin American archaeology's historical development has produced a mosaic of archaeological practices. Empiricism and culture-history have left deeply embedded imprints on contemporary archaeological research, but new developments, like some of those presented in this book, strongly indicate the vitality and diversity of the archaeology of the region, as well as some original approaches. As in other parts of the world (Ucko 1995), the importance of 'chance events' and the role played by some individuals in practising a particular kind of archaeology suggest that there is no straightforward correlation in Latin American archaeology between foreign theoretical and methodological influence and the nature of the types of archaeology practised in the region.

Nonetheless, it is important to note that in spite of the cultural bonds—of a certain common idiosyncrasy—and of the idiomatic affinity between Latin America and Spain and Portugal, the influence of these European countries on the archaeology of the region is minimal, if present at all. There are several reasons for this: on one side there is the lack of theoretical and methodological development in Spain and Portugal until recently, while on another side, when archaeology became a scientific discipline in Latin America the region was no longer under Spanish and Portuguese political or economic control. Some aspects of twentieth-century Spanish intellectual thought, such as literature and philosophy, certainly influenced Latin American societies, but the impact of these has generally been confined to the arts and humanities, and has not made itself felt within archaeology or anthropology (Funari, chapter 2; Politis 1995).

Finally, this book is trying to break out of a particular mould in which Latin American archaeology has been cast by many foreign archaeologists. The region seems to have been used as a source both of raw data and of social and political ‘Edens’ or imaginary laboratories of social processes with which to back up Euro-American archaeological theories or political agendas. As is shown in several chapters in the current volume, however, Latin America has, during its indigenous past, had a number of singular social processes. Moreover, the region has undergone socio-political developments in the twentieth century that have shaped specific national archaeological practices. Some of these developments, such as the Cuban revolution or the proliferation of military governments, have no counterparts in North America or the European countries, and have served to increase the intrinsic differences in archaeology within Latin America. Furthermore, the situation of indigenous communities is significantly different depending upon the country: in some (for example Cuba and Uruguay) the community is almost non-existent, while in others (Peru, Bolivia) it is in the majority The indigenous communities are a further factor shaping archaeological practice in each country, and in some cases generate a demand on investigation which promotes the use of a culture-historical approach. The temporal and spatial location of the remains of their ancestors and the identification of archaeological ‘cultures’ is for some indigenous groups a means of recovering a history of which they were robbed by colonial domination. The research themes associated with processual archaeology seem to be further from their own interests, and the post-processual discourse (which would constitute intellectual support for the recuperation of lost rights) appears extremely weighed down by theory and difficult to bring to bear on real-life situations. All these factors ensure that Latin American archaeology has significant internal variations. Until now the importance of differences in national archaeological developments has been seriously overlooked, while at the same time, the foreign perspectives on Latin American archaeology have produced a partial and distorted vision of Latin American archaeology. The chapters included in this book, although in no way covering all the approaches that exist in the region, aim to capture the diversity, to reflect on the origin and development, and to explore new areas of research and theoretical-methodological approaches in the archaeology of Latin America.

ACKNOWLEDGEMENTS

This chapter was translated by Benjamin Alberti, who also made important suggestions. José Perez Gollán read the text and gave critical and valuable advice. I am grateful to both colleagues for their collaboration.

REFERENCES

Amat Olazábal, H. (1997) ‘Julio C.Tello. Paladín del Autoctonismo’, in H.Amat Olazábal (ed.) *Julio C.Tello. Forjador del Perú Auténtico,* Lima: Centro de Estudios Histórico-Militares del Perú. 9–18.

Ameghino, F. (1881) *La Antigüedad del Hombre en el Plata,* Paris and Buenos Aires: G.Masson.

Balée, W. (1994) *Footprints of the Forest: Ka’apor Ethnobotany—The Historical Ecology of Plant Utilization by an Amazonian People,* New York: Columbia University Press.

Barreto, C. (1998) ‘Brazilian archaeology from a Brazilian perspective’, *Antiquity* 72, 277:573–81 .

Bennett, W., Bleiler E. and Sommer, F. (1948) *Northwest Argentine Archaeology,* New Haven: Yale University Press (Publications in Anthropology 38).

Bernal, I. (1979) *Historia de la Arqueología en Mexico,* Mexico: Ediciones Porrúa.

Burger, R. (1989) ‘An overview of Peruvian archaeology (1976–1986)’, *Annual Review of Anthropology* 18: 37–69.

Cabrera Pérez, L. (1988) *Panorama Retrospectivo y Situación Actual de la Arqueología Uruguaya,* Montevideo: Universidad de la República, Facultad de Humanidades y Ciencias.

Chavez Chamorro, M. (1986) *Trayectoria de la Antropología Colombiana,* Bogotá: Guadalupe.

Chávez Valenzuela, A. (1997) 'Julio C.Tello (1880–1947) Cincuentenario que compromete', in H.Amat Olazábal (ed.) *Julio C.Tello. Forjador del Perú Auténtico,* Lima: Centro de Estudios Histórico-Militares del Perú. 5–8.

Collier, D. (1982) 'One hundred years of Ecuadorian archaeology', in J.Marcos and P.Norton (eds) *Primer Simposio de Correlaciones Antropológicas Andino-Mesoamericano,* Guayaquil: Escuela Superior Politécnica del Litoral (ESPOL). 5–33.

Cruxent, J. and Rouse, I. (1958) 'An archeological chronology of Venezuela', *Social Science Monographs* 1: 2–39.

Daggett, R. (1992) 'Tello, the press and Peruvian archaeology', in J.Reyman (ed.) *Rediscovering Our Past: Essays on the History of American Archaeology,* Aldershot: Avebury (World Archaeology Series). 191–202.

Fernández, J. (1982) *Historia de la Arqueología Argentina,* Mendoza: Asociación Cuyana de Antropología.

Fernández Distel, A. (1985) 'Prehistoria', in Centro Argentino de Etnología Americana (ed.) *Evolución de las Ciencias en la República Argentina 1872–1972,* Buenos Aires: Sociedad Científica Argentina. 83–104.

Fernández Leiva, O. (1992) 'Desarrollo del pensamiento arqueológico en Cuba', in G.Politis (ed.) *Arqueología en America Latina Hoy,* Bogotá: Banco Popular. 32–44.

Funari, P. (1991) 'Archaeology in Brazil: politics and scholarship at a crossroads', *World Archaeological Bulletin* 5: 122–32

—— (1992) 'La arqueología en Brasil: política y academia en la encrucijada', in G.Politis (ed.) *Arqueología en America Latina Hoy,* Bogotá: Banco Popular. 57–69.

Gamio, M. (1922) *La Población del Valle de Teotihuacán,* 3 vols, Mexico: Secretaría de Fomento.

Gathercole, P. and Lowenthal, D. (eds) (1990) *The Politics of the Past,* London: Unwin Hyman.

Gero, J. (1991) 'Genderlithics: women's roles in stone tool production', in J.Gero and M.Conkey (eds) *Engendering Archaeology. Women in Prehistory,* Oxford: Blackwell. 163–93.

—— (1992) 'Feasts and females: gender ideology and political meals in the Andes', *Norwegian Archaeological Review* 25, 1:15–30.

Gnecco, C. (1995) 'Praxis científica en la periferia: notas para una historia social de la arqueología colombiana', *Revista Española de Arqueología Americana* 25:9–22.

González, A.R. (1961) 'La cultura de la Aguada del N.O.Argentino', *Revista del Instituto de Antropología de la Universidad Nacional de Córdoba* 2–3:103–253.

—— (1963) 'Cultural development in northwestern Argentina', in B.Meggers and C.Evans (eds) *Aboriginal Cultural Development in Latin America: An Interpretative Review,* Washington: Smithsonian Miscellaneous Collections (146, 1). 103–17.

—— (1977) *Arte Precolombino de la Argentina. Introducción a su Historia Cultural,* Buenos Aires: Filmediciones Valero.

—— (1979) 'Las exequias de Paine Güor', *Relaciones de la Sociedad Argentina de Antropología* 13:137–62.

—— (1992) *Las Placas Metálicas de los Andes del Sur. Contribución al Estudio de las Religiones Precolombinas,* Mainz am Rhein: Phillipp von Zabern.

Hyslop, J. (1984) *The Inca Road System,* New York: Academic Press

Joyce, R. (1996) 'The construction of gender in Classic Maya monuments', in R.P.Wright (ed.) *Gender and Archaeology,* Philadelphia: University of Pennsylvania Press. 167–95.

Kohl, P. and Fawcett, C. (eds.) (1997) *Nationalism, Politics and the Practice of Archaeology,* Cambridge: Cambridge University Press.

Kosso, P. (1991) 'Method in Archaeology: Middle-range Theory as Hermeneutics', *American Antiquity* 56: 621–7.

Letchman, (1979) 'Issues in Andean metallurgy', in E.Benson (ed.) *Precolumbian Metallurgy of South America,* Washington: Dumbarton Oaks Research Library and Collections. 1–4.

Lorandi, A.M. (1988) 'Los Diaguitas y el Tawantinsuyu: una hipótesis de conflicto', in T.Dillehay and P.Netherly (eds) *Proceedings del 45 Congreso Internacional de Americanistas. La Frontera del Estado Inca,* Oxford: British Archaeological Reports (International Series 442). 235–59.

Lorenzo, J.L (1961) *La Revolución Neolitica en Mesoamérica,* México: INAH (Departamento de Prehistoria 11).

—— (1976) *La arqueología mexicana y los arqueólogos norteamericanos,* México: INAH (Cuadernos de Trabajo. Apuntes para la Arqueología, 14. Departamento de Prehistoria).

—— (1981) 'Archaeology south of the Río Grande', *World Archaeology* 13:190–208.

Lowie, R. (1948) 'The tropical forest: an introduction', in J.Steward (ed.) *The Handbook of South American Indians,* vol. 3, Washington: Bureau of American Ethnology, Smithsonian Institution (Bulletin 143). 1–45.

Lumbreras, L. (1974) *La Arqueología como Ciencia Social,* Lima: Ediciones Histar.

—— (1989) *Chavín de Huantar en el Nacimiento de la Civilización Andina,* Lima: Ediciones INDEA.

Lyman, R., O'Brien, M. and Dunnell, R. (1997) *The Rise and Fall of the Culture History,* New York: Plenum Press.

McGuire, R. (1992) *Marxist Archaeology,* New York: Academic Press.

Medina, J.T. (1882) *Los Aborígenes de Chile,* Santiago: Fondo Histórico y Bibliográfico José Toribio Medina.

Meggers, B. (1992a) 'Cuarenta años de colaboración', in B.Meggers (ed.) *Prehistoria Sudamericana: Nuevas Perspectivas,* Santiago de Chile: Taraxacum.

—— (1992b) 'Amazonia: real or counterfeit paradise?', *Review of Archaeology* 13:25–40.

Meggers, B. and Evans, C. (ed.) (1963) *Aboriginal Cultural Development in Latin America: An Interpretative Review,* Washington: Smithsonian Miscellaneous Collections (146, 1).

Mendonça de Souza, A. (1991) *História da Arqueologia Brasileira,* São Leopoldo: Instituto Anchietano de Pesquisas (Antropologia 46).

Morris, C. and Thompson, D. (1983) *Huanuco Pampa: An Inca City and its Hinterlands,* London: Thames and Hudson.

Moseley, M. (1994) 'Andean archaeology. New light on the horizon', *The Review of Archaeology* 15, 2: 26–41.

Orellana Rodríguez, M. (1996) *Historia de la Arqueología en Chile,* Santiago de Chile: Bravo y Allende Editores.

Oyuela-Caycedo, A. (ed.) (1994) *History of Latin American Archaeology,* Aldershot: Avebury.

Oyuela-Caycedo, A., Amaya, A., Elera, C.G. and Valdez, L. (1997) 'Social Archaeology in Latin America?: Commentsto T.C.Patterson', *American Antiquity* 62:365–74.

Patterson, T. (1994) 'Social archaeology in Latin America: an appreciation', *American Antiquity* 59: 531–7.

Podgorny, I. (1997) 'De la santidad laica del científico. Florentino Ameghino y el espectáculo de la ciencia en la Argentina moderna', *Entrepasados. Revista de Historia* 13:37–61.

Politis, G. (ed.) (1992) *Arqueología en America Latina Hoy,* Bogota: Banco Popular.

—— (1995) 'The socio-politics of archaeology in Hispanic South America', in P.Ucko (ed.) *Theory in Archaeology. A World Perspective,* London: Routledge. 197–235.

Roosevelt, A.C. (1980) *Parmana: Prehistoric Maize and Manioc Subsistence along the Amazon and Orinoco,* New York: Academic Press.

—— (1991) *Moundbuilders of the Amazon: Geophysical Archaeology on Marajo Island, Brazil,* San Diego: Academic Press.

Schadel, R. (1978) 'Formation of the Inca state', in R.Matos (ed.) *III Congreso Peruano del Hombre y la Cultura Andina. Volume 1,* Lima. 112–56.

Schadel, R. and Shimada, I. (1982) 'Peruvian archaeology 1940–80: an analytic overview', *World Archaeology* 13: 359–71.

Shanks, M. and Hodder, I. (1995) 'Processual, postprocessual and interpretive archaeologies', in I.Hodder, M.Shanks, A.Alexandri, V.Buchli, J.Carman, J.Last and G.Lucas (eds) *Interpreting Archaeology: Finding Meaning in the Past,* London: Routledge. 3–28.

Steward, J. (1946–1950) *The Handbook of South American Indians,* 6 vols, Washington DC: Bureau of American Ethnology, Smithsonian Institution (Bulletin 143).

—— (1948) 'Culture areas of the tropical forests', in J.Steward (ed.) *The Handbook of South American Indians,* vol. 3, Washington DC: Bureau of American Ethnology, Smithsonian Institution (Bulletin 143). 883–903.

Tello, J. (1967) *Páginas escogidas,* Lima: Universidad Nacional Mayor de San Marcos.

Trigger, B (1992) *Historia del Pensamiento Arqueológico,* Barcelona: Editorial Crítica.

Ucko, P. (ed.) (1995) *Theory in Archaeology. A World Perspective,* London: Routledge.

Veloz Maggiolo, M., Ortega, E. and Cabal, A. (1981) *Los Modos de Vida Meillacoides,* Santo Domingo: Museo del Hombre Dominicano.

Whitley, D.S. (1998) 'New approaches to old problems. Archaeology in search of an ever elusive past', in D.S.Whitley (ed.) *Reader in Archaeological Theory. Post-Processual and Cognitive Approaches,* London and New York: Routledge. 1–28.

Willey, G. (1946) 'The Virú Valley Program in northern Peru', *Acta Americana* 4:224–38.

Willey, G. and Phillips, P. (1958) *Method and Theory in American Archaeology,* Chicago: Chicago University Press.

Willey, G. and Sabloff, J. (1980) *A History of American Archaeology,* 2nd edn, San Francisco: W.H.Freeman.

Part 1

History and theory

The development of contemporary archaeology in Latin America

Chapter Two
Brazilian archaeology
A reappraisal

Pedro Paulo A.Funari

INTRODUCTION

Brazilian archaeology is still largely ignored both within Brazil and abroad; even within the academic world it is perceived as an ancillary discipline dealing with the remote past. Archaeology for Brazilians is, if anything, an adventurous activity to be carried out in Egypt or elsewhere but not in Brazil, due to the lack of pyramids and other 'interesting' remains. Prehistoric archaeology, insofar as it is concerned with native Americans, is usually dismissed as an unnecessary search for the barbarous and uncivilised Indians. The only exception is the case of the attention paid by the media, and as a side effect by the public, to the earliest human remains discovered in the country. However, in the above case the interest is not directly related to the archaeological evidence or field research but to the possible primacy of Brazil with respect to the antiquity of humankind. Within academia archaeology is still considered to be subsidiary to history or anthropology; it can provide incidental illustrations of events known from contemporary documents in historical periods, as well as collecting prehistoric artifacts. In both cases, however, any analysis is left to historians or anthropologists.

The only way to understand the development of archaeology in Brazil is to study the relationship between changes in Brazilian society and the practice of science. Although there are some studies of the history of archaeology in Brazil (e.g. Mendonça de Souza 1991), there is no explicit study of the relationship between social and political changes and the resulting transformations within archaeology. Although there are now thousands of papers published on archaeological fieldwork (see Prous 1992:577), the overwhelming majority of them are merely descriptive in character. Such a situation can be explained by the history of Brazil and of the discipline, and by the establishment of an institutional structure which controls, by and large, the practice of archaeology within Brazil. I have chosen three subjects as representative examples of Brazilian prehistorical archaeology: the antiquity of humans in Brazil; the ecological approach and its recent critiques; and rock art studies. Two unconventional approaches are used as examples of how archaeology has developed in relation to specific historical periods and of its use within education. Finally, a sketch of theoretical trends is given, and I conclude by assessing the prospects for Brazilian archaeology.

The history, key subjects and theoretical trends of Brazilian archaeology must be understood within the context of Brazil's complex geography and historical development. Brazil is the largest country in South America—its 3,286,476 square miles (8,511,965 km^2) are equivalent to four-fifths of the territory of Europe, being thus larger than the continuous forty-eight United States of America. Brazil's Atlantic coastline stretches 4,603 miles (7,408 km). Almost the entire country has a tropical or semi-tropical climate: in the north there is the heavily wooded Amazon Basin covering half the country; the northeast region is semi-arid

scrubland; a large savannah *(serrado)* area stretches to the south; and semi-tropical vegetation exists from São Paulo State in the south up to the Pampa in Rio Grande do Sul State.

THE HISTORY OF ARCHAEOLOGY IN BRAZIL

The colonial period (1500–1822)

There are few references in historical colonial sources to archaeological sites, even though Cardim (1925 (1583)) refers to shell mounds, known in Brazil by their *tupi* name as *sambaquis,* and Feliciano Coelho's soldiers mention rock inscriptions as early as 1598 (Prous 1992:5). However, travellers and writers such as D'Évreux (1985), Soares (1944), Carvajal (1942), Father Anchieta (1988), Thevet (1944 (1575)), Léry (1942) and Staden (1930), among others, describe native inhabitants and their culture, furnishing a great deal of data on Indian material culture. Due to these sources, it has been possible to study native settlements taking into full account the historical evidence relating to the east Amazon Basin (Erikson 1992; Porro 1992; Renard-Casevitz 1922; Taylor 1992; Wright 1992), the north Amazon region (Amoroso 1992; Farage and Santilli 1992; Menéndez 1992), the south Amazon area (Franchetto 1992; Lopes da Silva 1992; Perrone-Moisés 1992), the northeast (Dantas *et al.* 1992; Paraíso 1992), the southwest (Carvalho 1992), the south (Kern 1982; Monteiro 1992) or the entire country (Fausto 1992). The evidence provided by such documents includes written descriptions, drawings and paintings, which are useful in terms of analysing material evidence. Hans Staden's drawings are perhaps the best example of this type (see Fig. 2.1). However, we must be aware of the bias of these early authors; Fleischmann and Assunção (1991) emphasised that such documents were not describing but interpreting native customs according to the ideology and specific interests of the authors. As a consequence, colonial sources—iconography and written documents—although of use, must be interpreted with reference to their social context. Such sources are overwhelmingly biased against native Americans, Africans and poor Europeans, and must therefore be studied with caution by archaeologists.

The Brazilian Empire (1822–1889)

Peter Wilhelm Lund, the first scholar to study Brazilian prehistory, came to Brazil as early as 1825 from Holland, stayed for three years and returned in 1833. Lund established a palaeontological laboratory in a village in Minas Gerais Province, at Lagoa Santa, where he found human and animal fossils (Mattos n.d.). Emperor Peter the Second, educated under the influence of classical German *Bildungsideal,* and the *alles wissen, alles tun* slogan ('to know and do everything'), went in person to Lagoa Santa to visit Lund. Between 1834 and 1844 Lund surveyed some eight hundred caves, discovering fossils thousands of years old. He collected a great deal of material and studied a variety of extinct fauna; at Sumidouro Lake he found human bones associated with extinct animals. Lund was a follower of Cuvier, who considered there to have been a universal biblical deluge. The association of human remains with extinct animals required, therefore, that humans had lived in the New World before the Deluge. It seems that Lund was not convinced by the applicability of Cuvier's Universal Deluge theory to the Americas. However, Lund was a Christian believer and did not choose to challenge current ideas, preferring instead to isolate himself and avoid taking a controversial position. Lund's scholarship is a good example of the tensions that arose from scientific archaeological work in Brazil: dogma and established truths when challenged by evidence tended to prevail and to force people to comply (see below, for another example of the tensions arising from data which undermine established interpretative models).



Figure 2.1 Tupinambás as seen by early Europeans (after Fausto 1992:388–9).

Concurrently, the National Museum, thanks to Wiener (1876), pioneered studies of lithic material, while the Canadian Charles Friedrich Hartt (1871, 1872, 1874, 1876, 1885) explored the Amazon Basin: a region also studied by Ferreira Penna (1876) and Barbosa Rodrigues (1876, 1892). Rath (1871) studied shell mounds *(sambaquis)* and the German scholar Fritz Mueller was employed by the National Museum as natural and human material collector. Such activities were due to Peter the Second and his European outlook, which resulted in official sponsorship of various disciplines, such as palaeontology and ethnology Ladislau Neto (1876, 1885a, 1885b) as Director of the National Museum, was perhaps the first Brazilian to explicitly study and write about archaeology as such. Neto was interested in the study of native Americans and was very much in touch with international academic standards. His exchange of letters with the French scholar Ernst Renan is an example of the good communication between early Brazilian scientists and foreigners. It is clear that from its inception archaeology in Brazil was linked to both foreign influence and state patronage.

The early Republic (1889–1920s)

Archaeology in the early Republican period continued to be dominated by people attached to museums. Thanks to the growing importance of the state of São Paulo and its economic hegemony within the federation, the cultural centre of Brazil shifted from the Court in Rio de Janeiro to the new Paulista élite. This shift explains the important role the Paulista Museum played in the discipline from the beginning of the twentieth century. There were indeed scholars studying elsewhere, such as the Swiss Emílio Goeldi

(1897–98, 1900, 1905) who explored the Amazon Basin from his post at the Museu do Pará (now Museu Paraense Emílio Goeldi), and Loefgren (1893, 1903) and Krone (1902, 1909, 1910, 1914, 1918), who studied shell mounds in São Paulo and Rio de Janeiro, but it was in São Paulo that long-term activities took place. The German scholar Hermann von Ihering (1895, 1902, 1904, 1907, 1911) was Director of the Paulista Museum from 1895 to 1916, when he was dismissed for political reasons (Losano 1992:99). Ihering was a racist, even defending the extermination of native Indians in Brazil, and he opposed the idea that shell mounds were evidence of prehistoric human settlements; he can be considered the first consistent conservative ideologist within Brazilian archaeology. It is interesting to note that Ihering was out of touch with modern research in Europe and was politically reactionary; the conservative establishment born in the 1960s (see below) would inherit such an outlook.

Sampaio (1916, 1918, 1922) is perhaps the best example of the generation of pioneer scholars, none of whom were professional archaeologists. Sampaio wrote a general paper on 'Brazilian archaeology' (1922) and believed wholeheartedly that rock 'scratches' should be interpreted as hieroglyphic writing.

1920s–1940s

Between the 1920s and the 1940s important changes occurred in Brazil, particularly in terms of political, social and cultural upheavals; rebellions, revolutions and dictatorships occurred side by side with a cultural transformation. Modernism and, later, fascist and communist ideas led to the emergence of 'the people' in intellectual discourse. Intellectuals from this point on addressed people's interests, and the 'mob' was not only the subject of such discourse but was also the ultimate audience for it. The establishment of the first university in Brazil, the São Paulo State University (USP), in the early 1930s was a direct result of the upheavals. As a side effect, archaeologists began to take the public into account, and also for the first time tried to carry out taxonomic scientific analyses of archaeological material.

This period thus witnessed two new developments: the study of artifact collections and the publication of archaeological handbooks. Mattos continued the tradition of earlier periods, but also produced scholarly manuals, especially on material from Minas Gerais State. His handbook of Brazilian prehistory (1938) is still valuable reading, particularly the introductory assessment of the disputes between different practitioners in this period. Costa (1934, 1936) produced the first overall introduction to Brazilian archaeology and prehistory; Barata (1944, 1950, 1952) wrote the first introduction to prehistoric art in Brazil; and the Argentine Antonio Serrano (1937, 1938, 1940, 1946) studied Brazilian collections of artifacts and thus established a new field of research within Brazilian archaeology. This period, which preceded the introduction of archaeology into the academic world in Brazil (before the 1950s), is usually ignored by students of the history of Brazilian archaeology. However, the publication of the first manuals and the inception of collection studies should not be underestimated considering that archaeology in Brazil continues to lag behind other Latin American countries in both these areas. This formative period should therefore be reinterpreted as an important landmark in Brazilian archaeology. The reason for the later scarcity of handbooks and collection studies, notably after 1964, should not be looked for in the 1920s–1950s period, but rather in the military clampdown of the academic world in the 1960s and 1970s.

The inception of university research (1950s–1964)

After World War II Brazil enjoyed its longest period of democracy; the participation of Brazilian soldiers in the Allied fight against fascism in Europe (1942–5) had established the basis for the overthrow of the Brazilian dictatorship of 1937–45. Democracy meant the introduction of people's concerns into intellectual

discourse and the growth of universities and other centres of learning throughout the country. Furthermore, industrialisation, especially in the south, was responsible for the availability of relatively large funds to be used for cultural activities.

Within the above context academic or scholarly archaeology was established by the leading Brazilian humanist Paulo Duarte. Due to his friendship with Paul Rivet, Director of the Musée de l'Homme, Paris, France, and in tune with his own struggle for human rights in Brazil, Duarte created the Prehistory Commission at São Paulo State University in 1952. Duarte was able to break the parochial, racist, out-of-touch character of Brazilian archaeology that had developed under Ihering and others. Duarte was not a museum director attempting to be a scholar, as was usually the case before and after him, but rather an intellectual who struggled to introduce ethical principles into the very act of creating archaeology as an academic discipline. Duarte pushed for legal protection of the Brazilian heritage, and as a result of his efforts the Brazilian Parliament enacted a federal bill (3537/57, approved as bill 3924 in 1961) protecting prehistoric assets (Duarte 1958). Duarte studied shell mounds (1952, 1955, 1968, 1969) and managed to bring Joseph Emperaire and Annette Laming-Emperaire (1975) to Brazil to carry out fieldwork.

The military period and the constitution of an archaeological establishment (1964–1985)

On 1 April 1964 a military coup took place in Brazil, which resulted in more than twenty years of authoritarian rule. From 1964 to 1968 the repression was mostly related to the suppression of formal liberties, but from 1968 the military introduced more violent practices, such as expulsions, detentions without trial, torture and killings. Inside academia there was at first censorship, and later, expulsions. The very slow process of the relaxation of repression began in the late 1970s and continued until 1985.

The Americans Clifford Evans and Betty Meggers (1947, 1954) excavated at the mouth of the Amazon as early as 1949 and produced several papers before 1964. However, it was only after the military coup in April 1964 that they were able to set up a network which resulted in the development of an archaeological establishment. The project of scholarly archaeology as proposed by Duarte was opposed by people in power who used funds (or rather, the lack of them) as a subtle but effective weapon. The cuts in university budgets in general were affecting first and foremost the human and social sciences; in the case of humanist archaeology, budgetary restrictions were a powerful way of hindering its development. Such subtle strategies were to change as the military began to use naked force to rule the country and to subdue intellectuals. The official support of death squads in the late 1960s introduced Brazilians to the new and disgusting concept of 'missing people'. Intellectual life underwent some radical changes; in the words of Octávio Ianni:

> For those who controlled state power from the 1964 coup, there was and there is [in 1978] a need to control, to marginalize, to curb or to suppress dissenting voices. The cultural policy in Brazil in the period 1964–1978 divides intellectuals into three categories. There is an encouraged or protected intellectual production; it is the official one. For people in power, this is the only sound production. Then, there is the tolerated overlooked production. Finally, there is the forbidden, censored one.
>
> (Ianni 1978:220)

The archaeological establishment created by the military of course followed the 'official' line; Brazilian archaeology was once again in the hands of museum directors and other bureaucratic officials. Perhaps the best (or worst) example is that of Paulo Duarte, who was expelled from the University in 1969 and was

succeeded by an official appointed by the authorities and considered as a reliable bureaucrat (Duarte 1994). Duarte died in internal exile years later, while his successor remains a leading intellectual bureaucrat (Funari 1994a:155–9).

In the period 1965–71 Evans and Meggers (from the Smithsonian Institution) set up the National Archaeological Research Project (PRONAPA), which included the Emílio Goeldi Paraense Museum, Brazilian Heritage (at the time called SPHAN, later IBPC) and most practitioners from the south and northeast of Brazil. Besides training a new generation of Brazilian fieldworkers, PRONAPA's aims included carrying out surveys and test excavations throughout the country. Furthermore, from the 1970s archaeological centres were created or developed, including the following (only the largest ones are mentioned here):

São Paulo State

- The Institute of Prehistory (IPH): founded in 1952 by Paulo Duarte as the Prehistory Commission, it was active until 1989 when it became part of the New Archaeological and Ethnological Museum (MAE-USP). From 1952 to 1989 about a hundred papers were produced, directly or indirectly related to the IPH, by approximately sixty authors (de Blasis and Piedade 1991:165–87).
- Paulista Museum: until 1989 there was a prehistory section in the Museum, active in excavations in the west of the state, which joined the IPH to form the new MAE-USP
- Archaeological and Ethnological Museum of São Paulo State University (MAE–USP): since 1989 all prehistoric archaeology in museums of the University has been carried out in the new MAE–USP.

Other states

- Emílio Goeldi Paraense Museum (MPEG), Pará State.
- Archaeological Studies Section (NEA), Federal University, Pernambuco State (UFPE).
- Museum of Anthropology, Federal University, Santa Catarina State.
- Estácio de Sá University, Rio de Janeiro.
- Federal University, Rio de Janeiro State.
- Institute of Brazilian Archaeology, Rio de Janeiro.
- Museum of Natural History, Federal University, Minas Gerais State.
- National Museum of Rio de Janeiro, Federal University, Rio de Janeiro State.
- Museum of American Man, Piauí State.
- Museum of Anthropology, Federal University, Goiás State.
- Anchieta's Archaeological Research Institute, São Leopoldo, Rio Grande do Sul State.

Graduate courses in archaeology were created at some universities, notably at the São Paulo State University and the Federal University, Pernambuco State. In 1980 the archaeological establishment set up a conservative Society for Brazilian Archaeology (SAB). The main journals created from the 1960s onwards were: *Revista de Pré-História* (published by IPH-USP up to 1989); *Dédalo* (published by MAE-USP up to 1989); *Revista do Museu de Arqueología e Etnologia* (from 1991); *Clio* (published by UFPE); *Pesquisa* (published by the Instituto Anchietano de Pesquisas Arqueológicas, São Leopoldo, Rio Grande do Sul); *Revista do Museu Paulista* (up to 1989); *Arquivos do Museu de História Natural* (UFMG); *Revista de Arqueologia* (National Research Centre, CNPq publication); and *Revista de História da Arte e Arqueologia,*

published yearly by the University of Campinas from 1994 and run by Brazilian and foreign committees, enabling it to be free of political interference.

Heritage management has been developing in Brazil for a long time, but it was only in the 1930s that there were official bills enacted in relation to the protection of monuments, and in 1937 there was the establishment of the Historic and Artistic National Heritage Service *(Serviço do Patrimônio Histórico e Artístico Nacional)*. The Service changed its name several times *(Secretaria do Patrimônio Histórico Artístico Nacional, Fundação Nacional Pró-Memória, Instituto Brasileiro de Patrimônio Cultural)* and presently it has a national office in Brasilia and regional sections in each state of the country. The national office is a bureaucratically controlled department and the regional offices are usually run by political appointees, sometimes aided by archaeologists, architects and other professionals, who in most cases are underpaid and unable to enforce technical decisions. Officially all excavators must ask for authorisation from the Brazilian Heritage regional offices, but most fieldwork, even that carried out by staff from universities and museums, is not recorded by Brazilian Heritage. This is due, among other reasons, to the inhibiting bureaucratic character of the office for archaeologists. Some states have their own state heritage foundations, the most effective probably being the São Paulo State Heritage *(Conselho de Defesa do Patrimônio Histórico, Arqueológico, Artístico e Turístico do Estado de São Paulo)*. Brazilian and state heritage offices are under direct political control and are thus subject to acute upheavals from time to time, usually after a change of government. IBPC, for example, was disbanded in 1990 as a result of the new Collor government and reinstated some months later. Occasionally the offices produce books and journals, predominantly used, unfortunately, for political propaganda (for example, see *Proteção e revitalização do patrimônio cultural no Brasil,* published in 1980 by SPHAN). Journals such as *Revista do Patrimônio Histórico e Artístico Nacional* are not published regularly, and useful books are only seldom published (e.g. Arantes 1984). More recently, some major cities, like São Paulo, Rio de Janeiro and Porto Alegre, have introduced their own local heritage offices, but again their activities are too dependent on political parties and loyalties to be of much use.

The Spanish scholar José Alcina Franch (1983) published a comprehensive bibliography of the archaeology of the Americas up to the early 1980s. Although he did not collect all the works on the subject, his bibliography is nevertheless a good sample and enables us to compare the data on different countries. Alcina collected 7,610 titles overall, 221 of them on Brazilian archaeology, and divided them into the following categories:

No. of titles		*Percentage of total*
Brazil in general	28	12.6
Northeast Brazil	17	7.6
Western Amazon Basin	9	4.0
Amazon Basin	49	22.1
East coast and south Brazil	55	24.8
West Brazil	9	4.0
Palaeolithic sites	12	5.4
Shell mounds	42	19.0
Total	221	

If we compare the above data with those for Argentina, for example, it is remarkable to note that there are 429 titles on Argentina, a much smaller and less populated country (Argentina thus produced 6 times as

many archaeological papers per square mile and 8.4 times as many papers per inhabitant than Brazil). Between 1964 and 1985 no handbooks on archaeology were produced in Brazil and the overwhelming majority of papers were excavation or survey reports, often in the form of M.A. or Ph.D. dissertations. Such work usually dealt with a single site or even a single fieldwork season, as is evident from dissertation titles, which include: 'Archaeological excavations at Corondo site, 1978 season' (Carvalho 1984), and 'Rescue archaeology at Tucurui region' (Costa 1983).

Current trends (1985 onwards)

'I know enough history to realise that great crises move slowly, and such poor little chaps as ourselves can only take pride in our resignation' (Bloch, as quoted in Fink 1991:54). Marc Bloch's words describe well the feelings among Brazilian intellectuals who survived the long ordeal of military rule. Already by the late 1970s Brazilian human and social scientists were able to reintroduce free discussions into academia, and as a result Brazilian scholarship in history, anthropology, and sociology became both scientifically structured within the country, and recognised abroad through different interpretative schools or trends. For archaeology, however, it has been a much tougher task for many reasons, not the least of which was that the archaeological establishment continued to control funds for fieldwork. Neves (1988:205) emphasised that 'no law, no political determination, no governmental aims or potential competence can stand up to academic corporativism'. Even foreign researchers, such as Roosevelt (1991b:106–7), had problems in publishing evidence and interpretations contradicting established truths. Others, such as Denis Vialou and Agueda Vilhena Vialou *(pers. comm.),* although authors of many papers on Brazilian prehistory published in France, were subjected to criticism by leading local archaeologists.

Brazilians continue to be the victims of human rights abuses, security forces massacres (Margolis 1992) and death squad activity. However, the restoration of civilian rule in 1985 has meant that freedom of expression, if nothing else, is once again viable. Consequently, it has been possible to develop some unconventional approaches to archaeology (see below) and the publication of an issue of *Les dossiers d'Archéologie* (169, March 1992) on Brazil bears witness to the renewed blooming of Brazilian archaeology. Furthermore, the first interpretative handbook on archaeology written by a Brazilian was published in the late 1980s (Funari 1988), and Prous (1992) published a long description of archaeological activities in Brazil. Papers summarising the situation within Brazilian archaeology have also been published in Brazil and abroad (e.g. Prous 1987, 1994; Funari 1992; Scatamacchia 1993).

SOME KEY SUBJECT AREAS IN BRAZILIAN PREHISTORY

Three subject areas are particularly good examples in terms of the study of Brazilian prehistory and its contradictions: the antiquity of humans in South America; the ecological approach and prehistoric cultures in Brazil; and rock art.

The antiquity of humans in South America

Until the 1970s the earliest dates relating to the presence of humans in South America were no earlier than some 10,000 years BP (Sanders and Marino 1971:48). Prous (1992:142) recently recognised that 'all references to human remains dated before 12,000 BP in the Americas continue to be dismissed by most authors from both North and South America'. However, some Brazilian archaeologists have recently proposed that humans were in Brazil as early as 50,000 BP, or even 300,000 BP. Guidon (1992), excavating

at São Raimundo Nonato, in Piauí State, maintained that 'the shelter was in use by pre-historic humans since at least fifty thousand years BP…[therefore] the archaeological area around São Raimundo Nonato has been settled by humans since 60,000 BP'(Guidon 1992:40–1). Guidon (1992:38) explains human settlement in South America as the result of direct maritime voyages across the Pacific Ocean due to migratory movements dated to 70,000 BP. The above dates and explanations are widely accepted in Brazil—officially at SAB meetings and by various authors, such as Carneiro da Cunha (1992:10–11) and Meneses (1992: 10–11).

Beltrão, who has excavated extensively in central Bahia State, and has published a great deal in Brazil and elsewhere (see Dillehay *et al.* 1992), stated as early as 1987 that:

> Prevalent among specialists of Prehistory in the Americas, an orthodox rigidity limits human occupation on our continent to 13,000 BP, despite growing evidence to the contrary resulting from archaeological findings. We have described in this paper the occupation, by pre-historic man, of limestone caves where one lithic artifact of quartzite (clactonian flake), bone artifacts of extinct fauna, and also campfires, were found. The jawbone of an extinct type of bear associated with the findings was dated to 300,000 BP, using a reliable absolute method. The human presence in this location is therefore indisputable as concerns its antiquity.
>
> (Beltrão 1987:276).

Beltrão dated layers II and IV at Toca da Esperança by the uranium-thorium method to between 204,000 and 295,000 BP. Such middle Pleistocene human occupation is linked to a *homo erectus* settlement in South America (Beltrão, in press). Beltrão (1988:17) proposed different possible migratory routes to South America, including a direct 'ice bridge' linking Africa and South America as early as 300,000 BP.

Guidon's and Beltrãos proposals, important as they are, would force a reinterpretation of world prehistory as a whole. However, their dating and explanations concerning the earliest human settlements in South America are still largely ignored outside Brazil. Thus there exists a silence surrounding Brazilian 'discoveries' within international archaeological discourse. Furthermore, there is also a lack of dialogue between archaeologists and natural scientists who, by studying genetic material, were able to demonstrate that the settlement of South America came necessarily from North America (see Black *et al.* 1991:63). There is no need to agree or disagree with these ideas, but in the long run it will be impossible to avoid a dialogue between Brazilian discoverers and international scholars (see Vialou and Vilhena Vialou 1992:9). Otherwise, the international archaeological community will continue to be sceptical of the claims for a Pleistocene human presence in Brazil (see Gamble 1995:211; Meltzer *et al.* 1994; Neves 1995).

The ecological approach and prehistoric cultures in Brazil

Ecological determinism as proposed by Steward (1946) has been instituted as a research strategy in Brazil since the first professional North American archaeologists came to Latin America. They, according to Roosevelt (1991a:106), were often linked to the United States government and its foreign policy through the OSS (later CIA) and the State Department. In the case of Brazil, the archaeological establishment born out of Meggers' training hindered both independent research and dissent interpretations. The best example of the traditional ecological approach is Meggers' (1971) *Amazonia: Man and Culture in a Counterfeit Paradise*. According to Meggers, the tropical climate was responsible for a supposed decay of progressive Andean cultural traits and technology in the Amazon Basin. However, other authors, such as Brochado (1980), Lathrap (1968, 1970) and Rouse (1953), challenged the ecological determinist approach as early as

the 1950s. Donald Lathrap, professor at the University of Illinois, was an innovative archaeologist who, in opposition to Meggers' and Evans' views, became the major proponent of chronological priority and cultural complexity in Amazonian prehistory. However, Meggers and Evans succeeded in excluding Lathrap and his students from fieldwork in Amazonia through political influence (Roosevelt 1991a:106). José Proenza Brochado went to the United States to study under the supervision of Lathrap, and they produced a comprehensive study of the Amazon Basin. They decisively challenged the ecological determinist approach with early material evidence, and hypothesised an early initial peopling of Amazonia by sedentary fisher-gatherers and house gardeners, covering the whole distance from the mouth of the Amazon to the eastern foot of the Andes between *c*. 14,000 and 11,000 BC (Brochado and Lathrap 1982: 18). More recently, Roosevelt (1989, 1992) studied the Amazon Basin and concluded that:

> Recent interdisciplinary archaeological research in the basin reveals a long sequence of prehistoric development, with progressive population growth, significant cultural innovation in certain areas, and, in late prehistoric times, the development of indigenous complex societies. The defeat of these societies by Europeans in the seventeenth century and the subsequent decimation and cultural simplification of hinterland refugees is documented by research on the conquest period…the environmental determinism theory had its origin in ethnocentric ahistorical, neo-colonial attitudes of Euroamerican anthropologists to the tropics rather than primarily in environmental historical and archaeological evidence from Amazonia…These data force us to reinterpret existing data on environmental history, human demography, material culture, economy, and socio-political organisation in Amazonian. Especially, it forces further consideration of the impact of the colonial expansion on indigenous societies traditionally treated by anthropologists as materially unaffected by the process.
>
> (Roosevelt 1991a:133–4).

The ecological approach was imposed by PRONAPA in Brazil, and continues to dominate the few interpretative frameworks developed by Brazilian archaeologists (Roosevelt 1991b:105–11). It is time that challenging evidence and interpretations should be produced and debated, not only in relation to the Amazon Basin area but throughout Brazil (on the theoretical problems to be addressed, see Lee 1992).

Rock art

Rock art studies represent a unique field of research within Brazilian archaeology for two main reasons: rock art was the only subject studied for many years and this has enabled the establishment of a comprehensive corpus of published archaeological material. As a consequence, it has been possible to propose classifications and definitions of different styles and periods of time. Despite the large number of descriptions of lithic and ceramic archaeological artifacts it should be emphasised that only rock art studies were able to carry out both an extensive publication programme and classification, which is enough to single out this subject as an oddity within Brazilian archaeology Thanks to Paulo Duarte, the leading French rock art scholar Annette Laming-Emperaire has been to Brazil on various occasions since the early 1950s (see Laming-Emperaire and Emperaire 1968). Laming-Emperaire published her *La signification de l'art rupestre paléolithique* in the early 1960s (Laming-Emperaire 1962), and was able to interpret rock art not in direct reference to ordinary practices but as a 'discourse'. Laming-Emperaire and André Leroi-Gourhan, under the influence of Lévi-Strauss' structuralism, interpreted rock art as a painted language.

Military rule in the country harmed the development of rock art studies by Brazilian scholars. However, from the 1970s French scientific missions were able to carry out research in São Paulo and Mato Grosso, directed by Vialou and Vilhena Vialou (1992), in Minas Gerais by Prous (1992: 509–42), in Piauí by Guidon (1989), while in the northeast Martin (1989) and Pessis (1984) were able to carry out research (see Fig. 2.2). The main achievement of Brazilian rock art studies has been, beyond dispute, the establishment of an extensive collection of drawings. However, a leading scholar in the field recently admitted that 'the interpretation of the drawings, the most complex analytic field, discussed at length during the 1950s, is nowadays abandoned' (Prous 1992:511). It is unfortunate that Laming-Emperaire's original interpretative aim did not develop as it could have done in the last thirty years. Once again, the burden of discretionary power intervention in academia is still being felt. Nonetheless, the collection of a large corpus of drawings should not be underestimated, as it can surely serve future generations of scholars interested in interpreting the drawings for a greater understanding of prehistoric symbolism.

UNCONVENTIONAL APPROACHES IN BRAZILIAN ARCHAEOLOGY

Historical archaeology

Classical archaeology was the earliest unconventional archaeology to evolve when Brazil was already under military rule. It is easy to understand that as the subjects within Brazilian archaeology were being controlled by people in power, classical archaeology was bound to lure critical archaeologists to Europe. Haiganuch Sarian, studied at the French School at Athens in the early 1960s and upon returning to Brazil was able to introduce two important features to Brazilian archaeology: theoretical authors and a high level of scholarship. Her learned erudition was the only major effort to sustain Paulo Duarte's humanist scholarship from the 1970s onwards. As the subject was classical archaeology, people in power were less concerned. However, there was a steady attack from the archaeological establishment on classical archaeology, considered as something foreign to Brazilian culture. It is perhaps difficult to understand today how a scholarly mythological lexicon *(Lexicon Iconographicum Mythologiae Classicae),* for example, edited by Haiganuch Sarian among others, could be considered a threat to Brazil! As a result of these circumstances, Brazil was to become one of the few countries outside the North America-Western Europe axis able to produce classical archaeologists, who not only studied the subject, but also taught and lectured in Europe (Funari 1995c:244).

The archaeology of historical sites in Brazil only developed later, and included fieldwork on maroon settlements in Minas Gerais by Carlos Magno Guimarães (Guimarães and Lanna 1980), on colonial sites in the northeast (Albuquerque 1969), as well as more detailed studies on colonial European artistic material culture (in this case, by art historians such as Tirapeli 1992). Substantial publication on Palmares, a seventeenth-century maroon in the northeast of Brazil by Orser (1992a, 1993, 1995) and Funari (1994b, 1995a, 1996) makes this the most comprehensively studied historic site in the country (see Fig. 2.3). Extensive fieldwork and publications are at present restricted to Kern's research at the Jesuit Missions in the south of Brazil, which have been studied as both European and Guarani settlements (Kern 1988, 1989). Kern was also the first Brazilian to set up a school site to train students. His activities, however, continue to be exceptional within Brazilian historical archaeology. It is symptomatic that while Stanley South's formula analysis has been characterised in the United States of America as a 'sort of objectification outside of the realm of a truly anthropological investigation and in fact [it] reduces historical archaeology to a most dry and impersonal sort of economic history' (Beaudry *et al.* 1991:152), a fieldworker like Tânia Andrade Lima (*et al.* 1989:84) in the late 1980s continued to propose South's method as a way of overcoming the

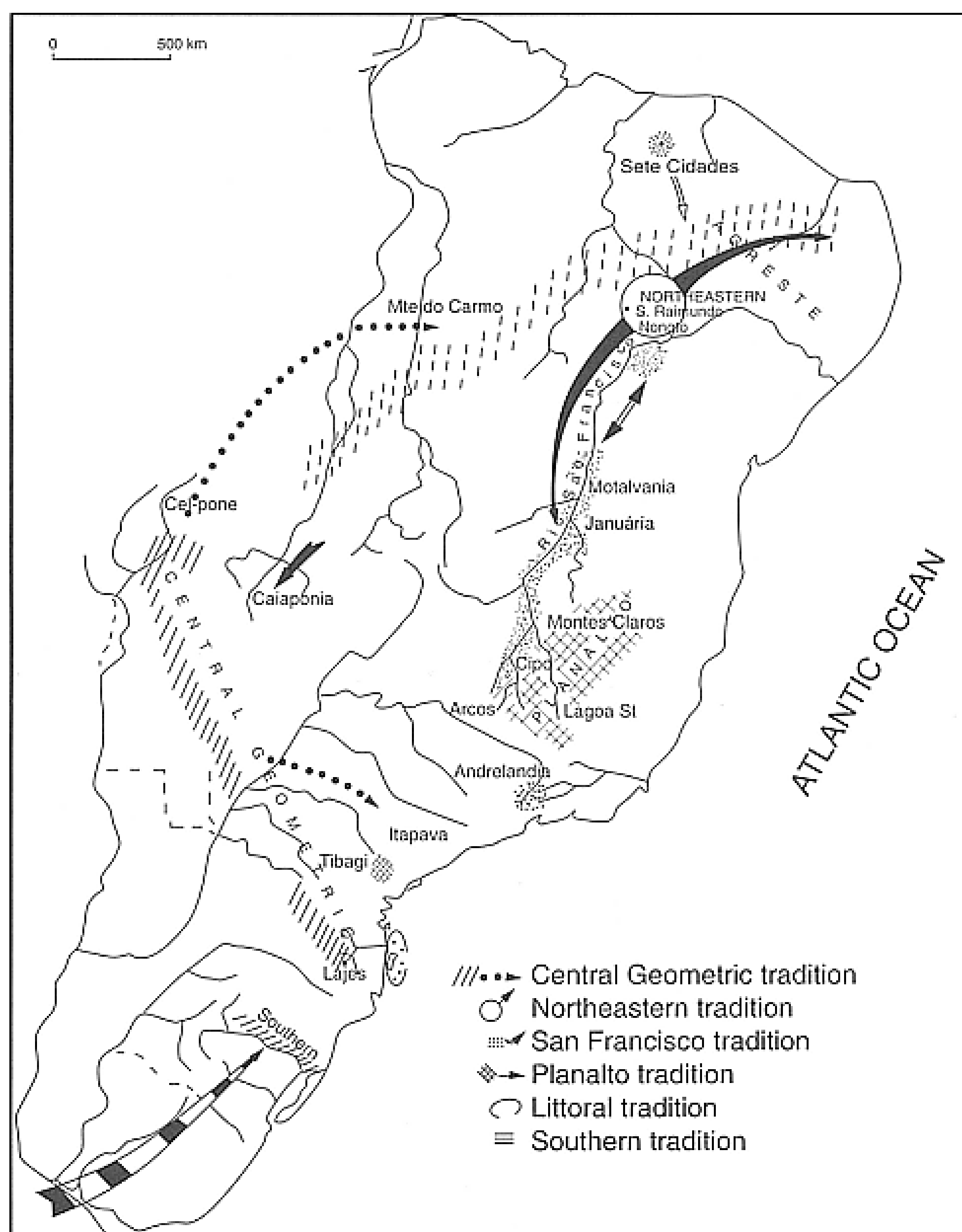


Figure 2.2 Map showing the rock art traditions in eastern Brazil (Pessis 1984).

descriptive character of historical archaeology. On the other hand, the first handbook on historical archaeology was published by Orser (1992b) and is now available to local Portuguese-speaking

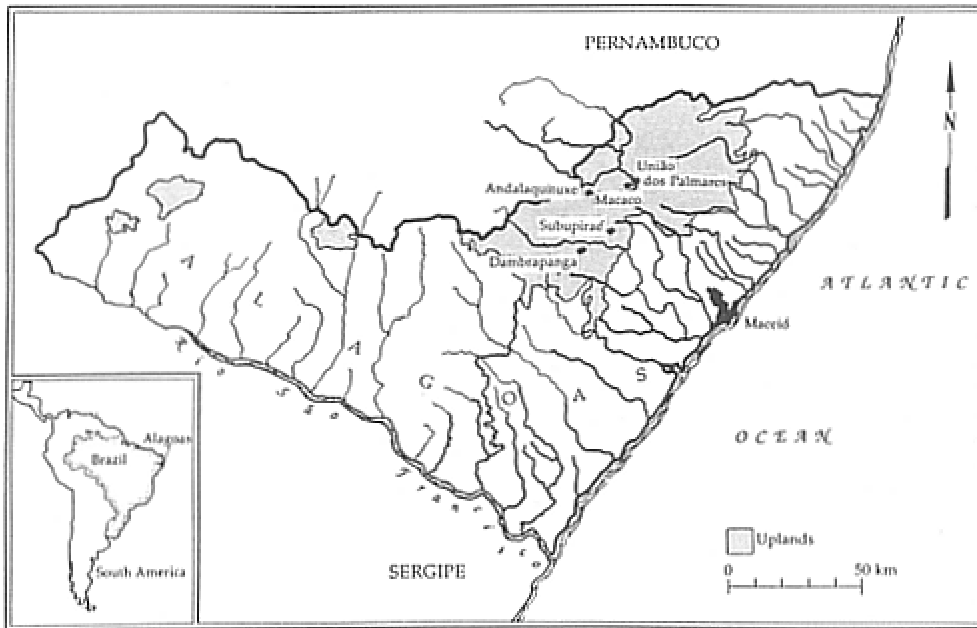


Figure 2.3 Map of Palmares settlements in the State of Alagoas (after Orser 1992a:13).

archaeologists (on the importance of the book, see Esarey 1995; for an overview of historical archaeology in Brazil, see Funari 1994d).

Education and the critique of material culture

Material culture has been essential as a means of enforcing the ideology of national identity in Brazil, both in formal education and through museums and other artifactual displays. In the twentieth century, owing to the growing importance of the São Paulo State élite within the country as a whole, an ideological hegemony of material culture was established through the creation in the 1920s of a specific mythology, that of the *bandeirante*. Pereira de Queiroz (1992) has studied how the São Paulo State élite devised the concept of the *bandeirante,* or 'flagholder', as a kind of frontiersman responsible for the creation of Brazil in the sixteenth century, and for its continued maintenance up to the present. *Bandeirantes* were considered both as Brazilian *lares* (Roman tutelar deities: Pereira de Queiroz 1992:85) and as our brave Roman soldier conquerors. This myth, created in the aftermath of the São Paulo State élite's ascension to power in the early twentieth century, has since been imposed on the remainder of the country. Pereira de Queiroz (1992:84, 86) emphasises that *bandeirante* mythology aims both at including all São Paulo State inhabitants as *bandeirantes* and at excluding people from elsewhere in the country as 'protected beneficiaries' of the achievements of the *bandeirante*.

The imposition of *bandeirante* mythology as a mass ideology was enabled through the manipulation of material culture. In terms of formal school education, textbooks published in São Paulo and used throughout the country presented the *bandeirante* materially through invented representations: their clothing, weapons and other material traits, devised in the twentieth century, were presented as actual sixteenth-century heroic symbols (Davidoff 1982). Furthermore, the Paulista Museum, created in the late

nineteenth century to commemorate Brazilian Independence, was completely refurbished by Taunay (1924–50) from 1917 to 1922, and transformed into a *bandeirante* museum, with the aim of building a new mythology of national identity. The Paulista Museum has since been used not only directly through museum 'pilgrimages' (in the words of a former museum director, Meneses 1991:5) by children and ordinary people, but also through the reproduction of its material culture displays (statues and pictures) in different media, from textbooks to postcards (Funari 1994c, 1995b).

Nonetheless, thanks to the efforts of ordinary teachers as well as education specialists such as Freire (1971), it has been possible to challenge the *bandeirante* ideology by introducing the material world of ordinary people into classrooms (Funari 1991) and textbooks, and by proposing counter-discursive analyses of current material displays (such as museums and monuments). The critique of monuments has not only been carried out in São Paulo State, but also elsewhere in the country. Doberstein (1992), for example, produced a monograph on law and ideology, focusing on early twentieth-century public monuments in Porto Alegre, and Tamanini (1994) has studied material culture at Joinville. Even so, counter-discursive strategies related to material culture are mainly being carried out by historians, social scientists, art historians, pedagogues, and ordinary teachers—but only rarely by archaeologists. However, the more people discuss such issues and challenge élitist bias of current material culture studies and displays, then the more archaeologists are bound to engage with the subject.

THEORETICAL TRENDS

Theoretical trends within Brazilian archaeology have depended directly on the overall changing political background in the last forty years or so (Funari 1994c). The early historical and humanist approaches of the 1950–64 period, which were directly influenced by Europe (see the case of the other social sciences in Pereira de Queiroz 1989), were overturned by the empiricism imposed by Evans and Meggers. Their environmental determinism (see above) and emphasis on empirical fieldwork, however, did not produce a generation of ecological determinists; Brazilian archaeologists trained under military rule to become empiricists and ecological determinists were not interested in fulfilling their role as defenders of a specific scientific approach, as there were no checks to their activities and power. Brazilian archaeologists educated by Meggers were not recognised, as a group, as respected empiricists and determinists outside the country and by international standards; unarticulated fieldwork, no corpus of material and poor classification were accompanied by the development of inadequate ecological models.

The restoration of civilian rule in 1985 introduced radical changes to theoretical trends in Brazilian archaeology. Once again, European influences were at the root of an upsurge in interest in the application of historical and social theories to archaeology and material culture studies. The first two papers on archaeological theory written by Brazilians were produced in the last ten years (Funari 1989; Kern 1991). A younger generation of students is regularly reading authors such as Binford, Courbin, Deetz, Gardin, Hodder, Shanks, Tilley, and Trigger. Although the archaeological establishment continues along its conservative anti-theoretical track, young scholars are increasingly venturing towards theoretical readings and previously unexplored research areas. A case in point is the Master's dissertation by the young archaeologist Leila Maria Serafim Pacheco, which is 'directly under the influence of the English-language archaeological theory produced in the 1980s', in her own words (Pacheco 1992:5); English language titles represent 58 per cent of all quoted works in her dissertation (thirty-six of sixty-two). There is no doubt that the so-called post-processual approaches dominating British and North American archaeologies are becoming even more popular in Brazil, although there is still a preference for processual, or at least non-critical, approaches and authors, such as Carl Moberg, James Deetz and Lewis Binford (whose handbooks

are quoted and praised by Neves 1989). Kern and Dias (1990) recently published an instigating paper entitled ‘Remarks on the relationship between archaeology and the history of ancient societies’, which deals with four main theoretical areas: material culture as a subject; material culture and archaeology; artifacts and history; and archaeology and the knowledge of ancient societies. In the paper there is an eclectic use of different authors and approaches, as they combine Annales School historians (such as Fernand Braudel and Marc Bloch), neopositivist historians (Paul Veyne), classical and traditional archaeologists (Renée Ginouves and Mortimer Wheeler), among others (Jean-Marie Pesez, Alexander Mongait, Richard Bucaille). There is no reference to post-processual archaeology and although the explicit goal of the article is to emphasise the necessary links between archaeology and history, the authors conclude that the ‘New Archaeology’ (processual archaeology), despite unspecified drawbacks, represents an advancement of science.

A recent interesting theoretical trend in Brazilian archaeology has been the study of the epistemology of archaeological reasoning. Sarian (1989) has been examining the archaeological interpretation of pottery in terms of both practical and methodological analyses. Consequently, although a descriptive approach to artifact analysis prevails in Brazilian archaeology, pottery studies are increasingly influenced by analytical scholars. Guarinello (1989) represents a young generation of researchers who, under the influence of theoreticians such as Michael Rowlands and Andrea Carandini, discuss questions such as the relationship between written documents and material culture, and how archaeology can be used in the study of more general subject areas such as imperialism and exploitation. It is important to stress that these young archaeologists lecture at some of the most influential academic institutions and are thus bound to encourage a new generation of theoretically minded archaeologists. The universities of São Paulo (Sarian and Guarinello), Campinas (Funari) and Rio Grande do Sul (Kern) have been active in the task of promoting the study of archaeological theory and methods and as a result theoretical lectures, previously a rare occurrence, are increasingly popular. Audiences are consequently reached not only in large cities, such as Rio de Janeiro and São Paulo, but also in smaller towns including Taquara (Rio Grande do Sul State), Assis (São Paulo State), and Joinville (Santa Catarina State).

CONCLUSION

Archaeology in Brazil has evolved over a long period of time and its course has depended upon changes in Brazilian society as a whole. Military rule produced an archaeological establishment impervious to change and unable to assert itself outside the country or within other social and human sciences in Brazil. However, recent developments have opened up huge areas to researchers interested in redefining Brazilian archaeology and material culture studies and offer occasional opportunities to daring scholars. Particularly auspicious is the fact that a young generation of students and scholars are prone to change; the reading of theoretical and interpretative works is enforcing a pluralist approach to archaeology. Fortunately, these scholars cannot be dismissed as members of a fringe group as they constitute the only archaeologists able to match both their colleagues in the human and social sciences in Brazil and foreign archaeologists. Furthermore, academic archaeology is being carried out in various institutions: archaeologists are being asked to work with human rights groups in excavating the remains of ‘missing’ people and Brazilian archaeologists must in this respect follow the Argentine lead in looking for the *desaparecidos* (Bellelli and Tobin 1996). Moreover, archaeologists are needed in the daunting task of critically unmasking myths created or maintained through material displays; displays are particularly potent at the present because of the growing racist and discriminatory rhetoric of extremist groups within Brazil. Anti-semitic terrorist attacks need to be counteracted by denouncing fascist monuments, as has recently occurred in São Paulo.

Attacks in the south of Brazil against migrants from the northeast of the country and their buildings and monuments demand that archaeologists take responsibility for a critical analysis of the material culture which leads people to commit such atrocious acts. In such cases, even the media turn to archaeologists, asking for explanations, and it is within this context that archaeology has an important role to play.

Whilst the archaeological establishment is ostensibly free from outside interference, most bureaucratic posts are held by people who are not only of conservative outlook but also narrow-minded and intellectually irrelevant. However, the inevitable ageing of the generation that has been in power from the 1960s means that sooner or later today's open-minded students will eventually succeed in assuring Brazilian archaeology a place within Brazilian social and human sciences and within the wider context of international archaeology.

ACKNOWLEDGEMENTS

I owe thanks to the following friends and colleagues who forwarded papers (sometimes unpublished ones), exchanged ideas and helped me in different ways: Ben Alberti, Maria da Conceição Beltrão, José Proença Brochado, Adriana Schmidt Dias, Arnaldo W.Doberstein, Norberto Luiz Guarinello, Carlos Magno Guimarães, Arno Alvarez Kern, Gabriela Martin, Silvana Muniz, Eduardo Goes Neves, Walter Alves Neves, Charles E.Orser Jr., Leila Pacheco, Maria Guadalupe Pedrero, Maria Isaura Pereira de Queiroz, Gustavo Politis, André Prous, Demian Moreira Reis, João José Reis, Anna Curtenius Roosevelt, Maria Cristina Mineiro Scatamacchia, André Luis R.Soares, Elizabete Tamanini, Peter Ucko, Denis Vialou, Agueda Vilhena Vialou, and Paulo Eduardo Zanettini. The ideas presented here are my own, and I alone am responsible for them.

REFERENCES

Alburquerque, M. (1969) 'O sítio arqueológico PE 13 Ln. Um sítio de contato interétnico', *Anais* 20: 79–89.

Alcina Franch, J. (1983) *Bibliografía Básica de Arqueología Americana,* Madrid: Editorial Cultura Hispánica.

Amoroso, M.R. (1992) 'Corsários no caminho fluvial: os Mura do Rio Madeira', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 297–310.

Anchieta, J. (1988) *Cartas: Informações, Fragmentos Históricos e Sermões (1554–1594),* Belo Horizonte: Itatiaia.

Arantes, A.A. (1984) *Produzindo o Passado. Estratégias de Construçåo do Patrimônio Cultural,* São Paulo: Brasiliense.

Barata, F. (1944) 'Os maravilhosos cachimbos de Santarém', *Estudos Brasileiros* 7, 13:37–9.

—— (1950) *A Arte Oleira dos Tapajó,* Belém: Instituto de Antropologia e Etnologia do Pará.

—— (1952) *As Artes Plásticas no Brasil: Arqueologia,* Rio de Janeiro: Larragoiti.

Barbosa Rodrigues, J. (1876) 'Antiguidades do Amazonas', in G.Schüch de Capanema, B.C.d'A.Nogueira and J.Barbosa Rodrigues (eds), *Ensaios de Ciência por Diversos Amadores,* Rio de Janeiro: Brown. 91–125.

—— (1892) 'Antiguidades do Amazonas', *Vellosia* 2:1–40.

Beaudry, M.C., Cook, L.J. and Mrozowski, S. (1991) 'Artifacts and active voices: material culture as social discourse', in R.Paynter and R.G.McGuire (eds) *The Archaeology of Inequality,* Oxford: Blackwell. 150–91.

Bellelli, C. and Tobin, J. (1996) 'Archaeology of the *desaparecidos*', *SAA Bulletin* 14, 2:6–7.

Beltrão, M.C. (1987) 'The Toca da Esperança', *Anais da Academia Brasileira de Ciências* 59, 3:276.

—— (1988) *Datação Absoluta Mais Antiga para a Presença Humana na América,* Rio de Janeiro: Editora da Universidade Federal do Rio de Janeiro.

—— (in press) 'SOS Bahia', to be published in ICOMOS—UNESCO.

Black, F., Pandey, J.P. and Santos, S.E.B. (1991) ‘Evidências baseadas em HLA e IgG sobre as relaçoes intre e inter continentais das populaçoes nativas da Amazônica’, in W.A.Neves (ed.) *Origens, Adaptaçoes e Diversidade Biológica do Homem Nativo da Amazônia,* Belém: Museu Paraense Emílio Goeldi. 55–83.

Brochado, J.P. (1980) ‘The social ecology of the Marajoara Culture’, unpublished Master’s dissertation, University of Illinois, Urbana.

Brochado, J.P. and Lathrap, D.W. (1982) ‘Chronologies in the New World Amazonian’, unpublished manuscript, University of Illinois, Urbana.

Cardim, F. (1925 (1583)) *Tratado da Terra e Gente do Brasil,* Rio de Janeiro: José Olympio.

Carneiro da Cunha, M. (1992) ‘Introdução a uma história indígena’, in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cias das Letras. 9–24.

Carvajal. G. (1942) *Relación del Nuevo Descubrimiento del Famoso Río Grande (1542),* Quito: Biblioteca Amazonas.

Carvalho, E.T. (1984) ‘Escavações arqueológicas no sítio Corondo—missåo de 1978’, unpublished dissertation, São Paulo State University.

Carvalho, S.M.S. (1992) ‘Chaco: encruzilhada de povos e “melting pot” cultural, suas Relações com a bacia do Paraná e o sul mato-grossense’, in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 457–74.

Costa, A. (1934) *Introdução à Arqueologia Brasileira,* São Paulo: Cia Editora Nacional.

—— (1936) *Arqueologia Geral,* São Paulo: Cia Nacional.

Costa, F.H.J.C.A. (1983) ‘Projeto Baixo Tocantins: salvamento arqueológico na Região do Tucurui’, unpublished dissertation, São Paulo State University.

Dantas, B.G., Sampaio, J.A.L. and Carvalho, M.R.G.de (1992) ‘Os povos indígenas no Nordeste brasileiro: um esboço histórico’, in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 431–56.

Davidoff, C.H. (1982) *Bandeirismo: Verso e Reverso,* São Paulo: Brasiliense.

De Blasis, P.A.D. and Piedade, S.C.M. (1991) ‘As pesquisas do Instituto de Pré-História e seu acervo: balanço preliminar e bibliografia comentada’, *Revista do Museu de Arqueologia e Etnologia da Universidade de São Paulo* 1:165–87.

D’Évreux, Y. (1985) *Voyage du nord au nord du Brésil: fait en 1613 et 1614,* Paris: Payot.

Dillehay, T.D., Calderón, G.A., Politis, G. and Beltrão, M.C. (1992) ‘Earliest hunters and gatherers of South America’, *Journal of World Prehistory* 6, 2:145–203.

Doberstein, A.W. (1992) *Estatuária e Ideologia,* Porto Alegre: Secretaria Municipal de Cultura.

Duarte, P. (1952) ‘Sambaquis do Brasil’, *Anhembi* 6, 17:205–11.

—— (1955) ‘Comentários a sessão de estudos de sambaquis’, in H.Baldus (ed.) *Anais do XXXI Congresso Internacional de Americanistas,* vol. 2, São Paulo: Universidade de São Paulo. 613–18.

—— (1958) ‘Defesa do patrimônio arqueológico do Brasil’, *Anhembi* 30:543–51.

—— (1968) *O Sambaqui Visto Através de Alguns Sambaquis,* São Paulo: IPH-USP.

—— (1969) *Estudos de Pré-História Geral e Brasileira,* São Paulo: IPH-USP.

—— (1994) ‘Pela Dignidade Universitária’, *Idéias* 1:159–79.

Erikson, P. (1992) ‘Uma singular pluralidade: a etno-história pano’, in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 239–52.

Esarey, M.E. (1995) ‘Review of C.E.Orser, Introdução à Arqueologia Histórica’, *Historical Archaeology* 29, 2:131–2.

Farage, N. and Santilli, P. (1992) ‘Estado de sítio: territórios e identidades no vale do Rio Branco’, in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 267–80.

Fausto, C. (1992) ‘Fragmentos da história e cultura Tupinambá: da etnologia como instrumento crítico de conhecimento etno-histórico’, in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 381–96.

Ferreira Penna, D.S. (1876) ‘Breve notícia sobre os sambaquis do Pará’, *Arquivos do Museu Nacional do Rio de Janeiro* 1:85–99.

Fink, C. (1991) *Marc Bloch: A Life in History,* Cambridge: Canto.

Fleischmann, U. and Assunção, M.R. (1991) 'Os Tupinambá: realidade e ficção nos relatos quinhentistas', *Revista Brasileira de História* 10, 21:125–45 (originally in P.Waldmann and G.Elwert (eds) (1989) *Ethnizitaet im Wandel, Saarbrucken,* Fort Lauderdale: Breitenbach Verlag).

Franchetto, B. (1992) '"O aparecimento dos caraíba": para uma historia kuikuro e alto xinguana', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 339–56.

Freire, P. (1971) *Paedagogik der Unterdrueckten,* Stuttgart: Suhrkamp.

Funari, P.P.A. (1988) *Arqueologia,* São Paulo: Atica.

—— (1989) 'Reflexões sobre a mais recente teoria arqueológica', *Revista de Pré-História* 7:203–9.

—— (1991) 'Education through archaeology in Brazil: a bumpy but exciting road', *Ciência e Cultura, Journal of the Brazilian Association for the Advancement of Science* 43:15–16.

—— (1992) 'La arqueología en Brasil: política y academia en una encrucijada', in G.Politis (ed.) *Arqueología en America Latina Hoy,* Bogota: Banco Popular. 57–69.

—— (1994a) 'Paulo Duarte e o Instituto de Pré-História: documentos inéditos', *Idéias* 1:155–9.

—— (1994b) 'La cultura material y la arqueología en estudio de la cultura africana en las Américas', *America Negra* 8: 33–47.

—— (1994c) 'Rescuing ordinary people's culture: museums, material culture and education in Brazil', in P.G.Stone and B.L.Molyneaux (eds) *The Presented Past. Heritage, Museums and Education,* London: Routledge. 120–35.

—— (1994d) 'A arqueología histórica no Brasil', *Boletim do Centro de Memória da UNICAMP* 6, 12: 51–60.

—— (1995a) 'The archaeology of Palmares and its contribution to the understanding of the history of African-American culture', *Historical Archaeology in Latin America* 7:1–41.

—— (1995b) 'A cultura material e a construção da mitologia bandeirante: problemas da identidade nacional brasileira', *Idéias* 2, 1:29–48.

—— (1995c) 'Mixed features of archaeological theory', in P.Ucko (ed.) *Theory in Archaeology. A World View,* London: Routledge. 236–50.

—— (1996) 'A "República de Palmares" e a Arqueologia da Serra da Barriga', *Revista USP* 28:6–13.

Gamble, C. (1995) *Timewalkers. The Prehistory of Global Colonisation,* Hardmondsworth: Penguin.

Goeldi, E. (1897–98) 'Estado atual dos conhecimentos sobre os índios do Brasil', *Boletim do Museu Paraense* 2:1–4.

—— (1900) *Excavações Arqueológicas em 1895 Executadas pelo Museu Paraense no Litoral da Guiana entre o Oiapoque e o Amazonas,* Paris: Garnier.

—— (1905) 'Escavações arqueológicas em 1895', *Memórias do Museu Paranaense* 1, 3:1–44.

Guarinello, N.L. (1989), 'Resenha crítica', *Revista de Pré-História* 7:212–14.

Guidon, N. (1989) 'Tradições rupestres da area arqueológica de São Raimundo Nonato, Piauí, Brasil', *Clio,* 5:5–10.

—— (1992) 'As ocupações pré-históricas do Brasil (excetuando a Amazônica)', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das letras. 37–52.

Guimarães, C.M. and Lanna, A.L.D. (1980) 'Arqueologia de Quilombos em Minas Gerais', *Pesquisas* 31: 146–63.

Hartt, C.F. (1871) 'The ancient Indian pottery of Marajó', *American Naturalist* 5:259–71.

—— (1872) 'On the occurrence of face urns in Brazil', *American Naturalist* 6:601–10.

—— (1874) 'Preliminary report of the Morgan expedition 1870–71. Report of the reconnaissance of the lower Tapajós', *Bulletin of Cornell University* 1:210–35.

—— (1876) 'Nota sobre algumas tangas de barro cozido dos antigos indígenas da Ilha de Marajó', *Arquivos do Museu Nacional do Rio de Janeiro* 1:21–5.

—— (1885) 'Contribuição para a etnologia do Vale do Amazonas', *Arquivos do Museu Nacional do Rio de Janeirofr.* 1–174.

Ianni, O. (1978) 'O estado e a organização da cultura', *Encontros da Civilização Brasileira* 1:216–41.

Ihering, H.von (1895) 'A civilização pré-histórica do Brasil meridional', *Revista do Museu Paulista* 1:1–55.

—— (1902) 'Natterer e Langsdorff', *Revista do Museu Paulista* 5:30–53.

—— (1904) 'A arqueología comparativa do Brasil', *Revista do Museu Paulista* 6:43–65.

—— (1907) 'A antropología do Estado de São Paulo', *Revista do Museu Paulista* 7:101–10.

—— (1911) 'Fósseis de São José do Rio Preto', *Revista do Museu Paulista* 8:30–53.

Kern, A.A. (1982) *Missões: Uma Utopia Política,* Porto Alegre: Mercado Aberto.
—— (1988) 'Arqueologia histórica missioneira', *Anais (Simposio Nacional de Estudos Missioneiros)* 7:184–94.
—— (1989) 'Escavações arqueológicas na missão Jesuítico-Guarani de São Lourenço', *Estudos Ibero-Americanos* 15, 1:111–33.
—— (1991) 'Abordagens teóricas em arqueología', unpublished manuscript, Porto Alegre.
Kern, A.A. and Dias, A.S. (1990) 'A propósito das relações entre arqueología e historia no estudo das sociedades antigas', *Anais do IV Simpósio de História Antiga e I Ciclo Internacional de História Antiga Oriental, Porto Alegre, UFRGS,* 119–29.
Krone, R. (1902) 'Contribuiçoes para a etnografia Paulista', *Revista do Instituto Histórico e Geográfico de São Paulo* 7:12–36.
—— (1909) 'Estudo sobre as cavernas do Vale do Ribeira', *Arquivo do Museu Nacional do Rio de Janeiro* 15:5–13.
—— (1910) *O Idolo Antropomorfo de Iguape, Sua Relação com os Sambaquis e a Pré–História Brasileira,* Iguape: Editora do autor.
—— (1914) *Informações Etnográficas do Vale do Rio Ribeira do Iguape,* São Paulo: Instituto Histórico e Geográfico.
—— (1918) 'Notas de Pré-História Paulista', *Revista do Museu Nacional do Rio de Janeiro* 10:115–23.
Laming-Emperaire, A. (1962) *La signification de l'art rupestre paléolithique,* Paris: Presses Universitaires de France.
—— (1975) 'Problemes de préhistoire brésilienne', *Annales: Économies, Societés, Civilisations* 5:1229–60.
Laming-Emperaire, A. and Emperaire, J. (1968) 'Descobertas de pinturas rupestres nos planaltos paranaenses', *Revista do Centro de Ensino e Pesquisa Arqueológica, Curitiba* 1:81–93.
Lathrap, D. (1968) 'The "hunting" economics of the tropical forest zone of South America: an attempt at historical perspective', in R.B.Lee and I.Devore (eds) *Man the Hunter,* Chicago: Aldine. 23–9.
—— (1970) *The Upper Amazon. Ancient Peoples and Places,* vol. 70, London: Thames and Hudson.
Lee, R.B. (1992) 'Art, science or politics? the crisis of hunter-gatherer studies', *American Anthropologist* 94, 1:31–54.
Léry, J.de (1942) *Viagem à Terra do Brasil,* São Paulo: Biblioteca Histórica Brasileira.
Lima, T.A. (1989) 'Aplicaçao da formula South a sítios históricos do século XIX', *Dédalo* 27:83–97.
Loefgren, A. (1893) 'Contribuições para a arqueología Paulista: os sambaquis', *Boletim da Comissão Geográfica e Geológica do Estado de São Paulo* 9:82–9.
—— (1903) 'Os sambaquis', *Revista do Instituto Histórico e Geográfico de São Paulo* 7:105–11.
Lopes da Silva, A. (1992) 'Dois séculos e meio de historia xavante', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 357–80.
Losano, M.G. (1992) 'Hermann von Ihering, um precursor da ecologia no Brasil', *Revista USP* 13:88–99.
Margolis, M. (1992) 'A 5,000 bullet barrage, a brawl in a Brazilian jail ends in a massacre', *Newsweek* 19: 56.
Martin, G. (1989) 'A subtradiçåo Seridó de pintura rupestre pré-histórica do Brasil', *Clio* 5:19–26.
Mattos, A. (1938) *Pre-História Brasileira,* São Paulo: Cia Editora Nacional (Brasiliana 137).
—— (n.d.) *O sábio Dr. Lund e Estudos sobre a Pré–História Brasileira,* Belo Horizonte: Apollo.
Meggers, BJ. (1947) 'The Beal-steers collection of pottery from Marajó Island, Brazil', *Papers of the Michigan Academy of Science, Arts and Letters* 31, 3:193–213.
—— (1954) 'Environmental limitations on the development of culture', *American Anthropologist* 56: 801–24.
—— (1971) *Amazonia: Man and Culture in a Counterfeit Paradise,* Chicago: Aldine.
Meltzer, D.J., Adovasio, J.M. and Dillehay, T.D. (1994) 'On a Pleistocene human occupation at Pedra Furada, Brazil', *Antiquity* 68:695–714.
Mendonça de Souza, A. (1991) *História da Arqueologia Brasileira,* São Leopoldo: Instituto Anchietano de Pesquisas (Antropologia 46).
Menéndez, M.A. (1992) 'A area Madeira-Tapajós: situaçåo de contato e relaçoes entre colonizador e indígenas', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 281–96.
Meneses, U.T.B. (1991) 'As margens do Ipiranga: museu e teatro da História', *D.O.Leitura* 8, 107:5.
—— (1992) 'A construção original do território americano', *Revista USP* 12:8–15.
Monteiro, J.M. (1992) 'Os Guarani e a historia do Brasil meridional: séculos XVI—XVII', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 475–500.

Neto, L. (1876) 'Apontamentos sobre os Tembetás', *Arquivos do Museu Nacional do Rio de Janeiro* 1: 230–44.
—— (1885a) 'Investigaçoes sobre a arqueología brasileira', *Arquivos do Museu Nacional do Rio de Janeiro* 6: 55–103.
—— (1885b) 'Lettre a Mr. Ernest Renan a propos de l'inscription phénicienne apocryphe', *Arquivos do Museu Nacional do Rio de Janeiro* 6:115–20.
Neves, E.G. (1989) 'Resenhas', *Revista de Pré-História* 7:210–12, 214–16.
—— (1995) 'Os índios antes de Cabral: arqueología e historia indígena no Brasil', in A.Lopes da Silva and L.Grupioni (eds) *A Temática Indígena na Escola,* São Paulo: MEC. 171–92.
Neves, W.A. (1988) 'Arqueologia brasileira: algumas consideraçoes', *Boletim do Museu Paraense Emílio Goeldi* 42: 200–5.
Orser, C.E. (1992a) *In Search of Zumbi,* Normal: Illinois State University.
—— (1992b) *Introdução a Arqueologia Histórica,* Belo Horizonte: Oficina de Livros (translated into Portuguese by P.P.A.Funari).
—— (1993) *In Search of Zumbi, the 1993 Season,* Normal: Illinois State University.
—— (1995) *A Historical Archaeology of the Modern World,* New York: Plenum Press.
Pacheco, L.M.S. (1992) 'lnformação e contexto: uma análise arqueológica', unpublished Master's dissertation, Federal University at Rio de Janeiro.
Paraíso, M.H.B. (1992) 'Os botocudos e sua trajetória', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 413–30.
Pereira de Queiroz, M.I. (1989) 'Desenvolvimento das ciências sociais na America Latina e a contribuição européia: o caso brasileiro', *Ciência e Cultura* 41, 4:378–88.
—— (1992) 'Ufanismo paulista: vicissitude de um imaginário', *Revista USP* 13:78–87.
Perrone-Moisés, B. (1992) 'Indios livre e índios escravos: os princípios da legislação indigenista do período colonial (séculos XVI a XVIII)', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 115–32.
Pessis, A.-M. (1984) 'Método de interpretação da arte rupestre pré-histórica: análises preliminares da ação', *Revista de Arqueologia* 2, 1:47–58.
Porro, A. (1992) 'História indígena do alto e medio Amazonas: séculos XVI a XVIII', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 175–96.
Prous, A. (1987) 'O Brasil antigo visto pela arqueología', *Revista do Departamento de História da Universidade Federal de Minas Gerais* 4:100–15.
—— (1992) *Arqueologia Brasileira,* Brasilia: Editora da UnB.
—— (1994) 'L'archeólogie brésilienne aujourd'hui', in P.Lévêque, J.A.Dabdab Trabulsi and S.Carvalho (eds) *Recherches Brésiliennes,* Paris and Besançon: Belles Lettres. 10–43.
Rath, C.E (1871) 'Notícia etnológica sobre um povo que já habitou as costas do Brasil bem como o interior, antes do dilúvio universal', *Revista do Instituto Histórico e Geográfico Brasileiro, Rio de Janeiro* 34:276–90.
Renard-Casevitz, F.M. (1992) 'História pré-colombiana da alta Amazônia', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 213–38.
Roosevelt, A.C. (1989) 'Lost civilizations on the lower Amazon in natural history', *Natural History,* February: 74–83.
—— (1991a) 'Determinismo ecológico na interpretação do desenvolvimento social indígena da Amazônia', in W.A.Neves (ed.) *Origens, Adaptaçoes e Diversidade Biológica do Homem Nativo da Amazônia,* Belém: Museu Emílio Goeldi. 103–41.
—— (1991b) *Moundbuilders of the Amazon. Geophysical Archaeology on Marajó Island, Brazil,* New York: Academic Press.
—— (1992) 'Arqueologia Amazônica', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 53–86.
Rouse, I. (1953) 'The circum-Caribbean theory, an archaeological test', *American Antiquity* 55, 2:188–200.
Sampaio, T. (1916) 'Dois artefatos indígenas do Museu Arqueológico do Instituto Geográfico e Histórico da Bahia', *Revista do Instituto Geográfico e Histórico da Bahia* 42:353–68.

—— (1918) ‘Inscrições lapidares indígenas no vale do Paraguaçu’, in T.Sampaio (ed.) *Anais do Quinto Congresso Brasileiro de Geografia,* vol. II, Bahia: Imprenta da Bahia.

—— (1922) *Arqueologia Brasileira, Dicionário Histórico, Geográfico e Etnológico do Brasil,* Rio de Janeiro: José Olympio.

Sanders, W.T. and Marino, J. (1971) *Pré-História do Novo Mundo,* Rio de Janeiro: Zahar.

Sarian, H. (1989) ‘Resenha’, *Revista de Pré-História* 7:216–19.

Scatamacchia, M.C.M. (1993) ‘A prática da arqueología no Brasil’, *Revista de Arqueologia Americana* 7: 117–29.

Serrano, A. (1937) ‘Arqueologia Brasileira: subsídios para a arqueología do Brasil meridional’, *Revista do Arquivo Municipal de São Paulo* 36:398–405.

—— (1938) ‘La ceramica de Santarém’, *Revista Geográfica Americana, Buenos Aires,* 9:111–22.

—— (1940) ‘Los sambaquis y otros ensayos de arqueología brasileña’, in *Anais do Terceiro Congresso Rio-Grandense de História e Geografia,* Porto Alegre: Imprenta Riograndense.

—— (1946) ‘The sambaquis of the Brazilian coast’, in J.H.Steward (ed.) *The Handbook of South American Indians,* vol. 3, Washington: Smithsonian Institution. 383–95.

Soares, G. (1944) *Tratado descritivo do Brasil em 1587,* São Paulo: Biblioteca Histórica Brasileira.

Staden, H. (1930) *Viagem ao Brasil,* Rio de Janeiro: Associação Brasileira do Livro.

Steward, J.H. (ed.) (1946) *Handbook of South American Indians,* vol. 3, Washington: Smithsonian Institution.

Tamanini, E. (1994) ‘Museu Arqueológico de Sambaqui de Joinville: um olhar necessário’, unpublished Master’s dissertation, UNICAMP, Campinas.

Taunay, A.E. (1924–50) *História Geral das Bandeiras Paulistas,* vols. I–II, São Paulo: Cia Editora Nacional.

Taylor, A.C. (1992) ‘História pre-columbiana da alta Amazônia’, in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 213–38.

Thevet, A. (1944 (1575)) *Singularidades da França Antártica, a que Outros Chamam America,* São Paulo: Cia Nacional.

Tirapeli, P. (1992) ‘Le baroque religieux a l’apogée de la période miniere’, *Les Dossiers d’Archéologie* 169, March: 40–4.

Vialou, D. and Vilhena Vialou, A. (1992) ‘Arts préhistoriques au Brésil’, *Les Dossiers d’Archéologie* 169, March: 8–11.

Wiener, C. (1876) ‘Estudo sobre os sambaquis do sul do Brasil’, *Arquivos do Museu Nacional do Rio de Janeiro* 1: 388–405.

Wright, R.M. (1992) ‘História indígena do noroeste da Amazônia: hipóteses e perspectivas’, in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras. 253–66.

Chapter Three
Some aspects of the French influence upon Uruguayan and Brazilian archaeology

José M.López Mazz

O antropólogo Lévi-Strauss, não gosto da bahia de Guanabara
Caetano Veloso

INTRODUCTION

During the 1980s, courses of archaeology and prehistory in French universities were attended regularly by Latin American students. Some of these students were following the example of their Latin American teachers who had attended, in their turn, postgraduate studies in France two decades earlier. Others had worked in America with French teams, which as a consequence led to their subsequent visits to the Old World. The presence of Peruvian, Argentinian, Brazilian and Uruguayan students at the University of Paris I, at Nanterre, at the École des Hautes Études en Sciences Sociales, in the Collège de France and in the Museé de l'Homme, showed the interest that French archaeology awoke among some Latin American archaeologists. Such interest was the most noticeable aspect of a long history of relations between French researchers and the American continent and its native populations. Furthermore, the drift of Latin American bourgeois intellectuality made Paris an inevitable stop in any academic journey, often for non-archaeological reasons. Although French influence is important, even basic to some topics, it is not the only influence, nor the one of greatest relative weight.

The aim of this chapter is to point out some aspects of the influence of French archaeology upon Uruguayan and Brazilian archaeology. Apart from the obligatory reference to the French pioneers in America, I will refer to the humanist and diffusionist influence of Paul Rivet, and the impact of palaeolithic studies. Finally, I will summarise the theoretical contribution of French structuralism, especially in rock art studies.

HISTORICAL ANTECEDENTS AND PECULIAR RELATIONSHIPS: TRAVELLERS, CHRONICLERS, AND ADVENTURERS

Among the various possible pre-Columbian journeys by Europeans to America is that of the Frenchman Jean de Cousin to the Brazilian coast four years before the first of Christopher Columbus' journeys (Lévi-Strauss 1965:65). Whether true or not, French presence in the continent dates from the first moment of the Conquista. For example, Genneville travelled to the Brazilian coast in 1503, only three years after the Portuguese conquistador Cabral (Lévi-Strauss 1965:65).

From the numerous French travellers who journeyed over the continent a wide and rich ethnographic literature arose. Ethno-historical documents furnished direct observations of life in American societies, societies which became progressively acculturated by the European process of conquest and colonisation.

Jean de Léry stands out as one of the pioneers of the sixteenth-century chroniclers. In *Histoire d'un voyage fait en la terre du Brésil* (de Léry 1994 (1578)) he made important descriptions of Tupinambás villages in Guanabara Bay, Brazil. Also of importance was André Thevent (see Métraux 1933), who made two journeys in 1550 and 1555, leaving descriptions of the people and geography of various regions. The heterogeneous nature of the work of these writers is demonstrated by the title of one:

> The story of André Thevent Angoumoisin, the King's cosmographer, of two voyages he made to the South and West Indies. Containing the way of life of the wild people, and observations of the principal routes that pilots and mariners should take in order to avoid shipwreck and other [sic] dangers of this great ocean, with a response to the booklet with public insults published against the Chevalier Villegagnon.
>
> (Métraux 1933:33)

Whilst some of the chronicles are the results of journeys made with aims and itineraries more or less fixed, others were due to casual trips, such as that to Tierra del Fuego in 1680, made by the 'filibuster' Jean de la Guilbaudière, who left an interesting description of the vocabulary of canoe peoples in the region (Hammerly-Dupuy 1952:137). The aspects focused on by the chroniclers in their observations on native populations often included physical traits, geographical surroundings, customs, languages and beliefs. The observations and descriptions left by such writers were made from different perspectives, because the chroniclers included explorers, geographers, priests, sailors, businessmen, naturalists, soldiers and public officials. This often subjective literature fed the production of imagery and legends concerning America and its inhabitants. The chronicles should be studied in connection with the education and views of the traveller, from the organic vision of the naturalist to the more pragmatic perspective of the priest and the mechanical standpoint of the soldier.

Even though historical documents point out that during the eighteenth and nineteenth centuries these chroniclers were abundant and left detailed descriptions of peoples from remote areas in America, there are some important French documents from the period that have not been researched. French writers supplied information about and descriptions of American peoples for the European collective imagination of the seventeenth and eighteenth centuries, as well as for the 'New Sciences of Man' of the nineteenth century. As modern scientists began research into prediluvian humanity, they started developing the first theories that tried to explain the origin and the antiquity of the pre-Columbian populations. Such theories, which arose from an evolutionary inspiration, mixed ethnography, environmental and physical anthropology, linguistics and archaeology in a disorganised fashion.

The complex nature of the ethno-historical data and their relationship with events of different kinds provides a clear analogy with a process that was taking place in Europe. In France, the incipient prehistoric archaeology, together with modern geology and vertebrate palaeontology, provided a useful model for the building of positive knowledge of the diverse subjects of American studies. The debate concerning 'pre-diluvian man' was seen as valid in connection with American man'. The originality of the French contribution has been of methodological value within a clearly evolutionary framework. This placed ethnographic and archaeological research at the crossroads of the 'Earth Sciences' and the 'Sciences of Man'. From such a perspective, cultural matters always refer to their natural context (either organic or inorganic). Gradually, a common idea of archaeology and ethnography arose that saw them as the natural history of human culture. Technological studies, mainly as a social vision of technology, appeared particularly relevant from this standpoint.

Apart from geographical, ethnographic and archaeological aspects, the approach consolidated at the beginning of the century was characterised by the inclusion of the study of physical characteristics of indigenous American peoples. America offered an interesting area for craniology research and the study of race, which was led by, among others, the Frenchmen Quatrefages (1867) and Topinard (1884, 1885, 1891). With a diffusionist orientation, anthropometry and raciology were combined with linguistic and environmental classifications and appreciations of material culture. Rivet's work, as will be seen later, is amply illustrative in this respect.

Archaeological studies of some regions in Latin America have a significant historical tradition, generally connected to specific topics, such as ancient settlements and rock art. At some points during the constitution of a scientific and academic community the influence of French archaeology has been evident. The building of the mutual identities of European 'subject' and American 'object' reveals a process that has had interesting consequences.

AN ESTIMATION OF THE FRENCH INFLUENCE

A discussion of the beginning of national archaeologies and their present degree of development in different Latin American regions is an ambitious project that exceeds the scope of this chapter. Nevertheless, an estimation of the French influence on Latin American archaeology is a subject on which I am willing to risk some opinions. My knowledge of the subject comes mainly from my experience of Uruguayan and Brazilian archaeology.

The first step in achieving the proposed analysis is to define which French archaeology, and which Latin American archaeology In this respect, a clear development, both heterogeneous and multicentred, of the teams that work on the archaeology of a certain period or region appears. Amongst the centres (museums, universities, ministries of education, scientific institutions, etc.), and amongst the specialists (the 'Americanists'), a complicated network of affinities, interchanges and integration has emerged. There is no single French archaeology, nor a single Latin American archaeology. Theoretical movements, university trends, influences as a whole, are some of the elements involved in a constant and complicated flow of information on which I will try to focus in more detail.

Politis (1995) has recognised that the French influence on Latin American anthropology consists of three different levels: technical, analytical and theoretical. The French contribution to the theoretical field is less significant than the North American and British influence. Cleuziuo *et al.* (1991) argue that, in general, theoretical issues have not greatly interested French archaeologists—those who explicitly take into account such preoccupations being only a minority, although very active. The strong resistance by Courbin (1981) to 'New Archaeology' provoked certain anti-theoretical predispositions which can be seen in the work of several South American authors (e.g. Lezama 1995).

Cleuziuo *et al.* (1991) discuss modern French 'insularity' in theoretical matters. They refer to the strong influence of cultural studies of technology as representing a certain continuity in the French scholarly tradition, which starts with the social and political importance given to technology in Diderot's and D'Alembert's Encyclopedia (1751). In this field, Leroi-Gourhan's (1950, 1965b, 1976) influence was determinant, and his work was applied to South American archaeology by Laming-Emperaire (1967, 1975, 1980). One of the most outstanding personalities of French archaeology in South America was, without a doubt, Annette Laming-Emperaire, who was the Director of the French Missions in Lagoa Santa (Brazil) and Salto Grande (Uruguay), Professor of Prehistorical South American Anthropology at the École des Hautes Études en Sciences Sociales, Paris, and Director of the Archaeological Research Unit, Conseil National de la Recherche Scientifique (CNRS).

French theoretical influence can be seen in other areas. Firstly, Rivet's pioneering diffusionist approach, and secondly, the tradition of palaeolithic studies, where typologies and their morphotypes are used in describing, classifying, and better understanding technological and human evolution, as well as being useful in studying geological deposits. The detailed typologies of attributes sustained the principle that the more something is described, the better it is understood.

One can clearly see a further instance of French theoretical influence in structuralist-inspired archaeology (see Velandia, this volume). This perspective, tested ethnographically through the analysis of myths, was particularly successful in rock art studies (see Anthonioz and Monzón 1978; Guidon 1975).

Another influence, methodological and technical rather than theoretical, is exemplified in the development of fieldwork techniques, mainly as concerns excavation procedures. The dissection of a site by ethnographic excavation allows detailed data to be collected, which improves the reading and interpretation of all the processes (cultural and natural) that occurred at the site. As such, the different processes involved in the building up of a site were recognised and remarked upon for the first time by Leroi-Gourhan (1950).

Two publications are unavoidable references in the study of French influence: the *Journal de la Société des Américanistes* (1897–), connected to the Museé de l'Homme, and the *Cahiers d'Anthropologie Préhistorique de I'Amérique du Sud* (1974–), originally edited at the École Pratique des Hautes Études (section 6) under the guidance of the Laboratoire d'Archéologie and the support of the CNRS.

An historical focus offers an interesting perspective from which the changing relationships between archaeological interpretations and their socio-cultural surroundings can be analysed (Trigger 1992:15). The influence of French archaeology on Uruguayan and Brazilian archaeologies seems to obey this principle. In this period, the consolidation of the Latin American states prompted some interest in science and technology.

Finally, it is important to stress that the most notable influence on the archaeology of the Rio de la Plata and southern Brazil has been the Austro-German diffusionism of the 'Escuela de Buenos Aires', which was linked to the intensive research developed in the region by Menghin (1963) and Bórmida (1964a, 1964b). Taddei (1964) and other members of the Centro de Estudios Arqueológicos in Montevideo were deeply affected by this orientation and developed most of their research under the influence of the 'Escuela de Buenos Aires'.

THE INFLUENCE OF PAUL RIVET

To enumerate the circumstances in which French researchers influenced the development of archaeology in Latin America means necessarily to refer to Paul Rivet's life and work. Rivet arrived in South America as a doctor in the French Geodesic Mission in Ecuador in 1901, and was decisively influential, mainly in the humanistic approach of anthropological studies in various countries. The establishment of ethnographic and archaeological studies within the humanities in the region was largely due to his influence, as can be seen, according to Funari (1994), in his relationship with Duarte and the Commission of Pre-History of the Universidade de São Paulo, Brazil.

Rivet's influence was forceful in the Colloquium of the Sciences of Man, organised in La Facultad de Humanidades y Ciencias in Montevideo in 1955[1], where a group of his followers first appeared (Vidart, Petit Muñoz, Ardao and Vásquez). During the Colloquium a significant debate took place about the terms 'anthropology' and 'ethnology', and on the convenience of a South American trend towards an archaeology of anthropology (or ethnology). Above all, however, the debate concerned the idea of the solidarity and interdependence of all the human sciences (Rivet 1955:31).

Rivet's influence reached its peak during his time as head of the Museé de l'Homme, Paris, and during his Presidency of the French Delegation to the Eighth General Conference of UNESCO. One of the first centres of anthropological studies in Uruguay, under the guidance of Vidart (1962), was called 'Centro de Estudios Arqueológicos y Antropológicos Dr. Paul Rivet' in Rivet's honour. Vidart (1955:16) not only recognised Rivet's humanist influence, but also followed his diffusionist orientation (e.g. Vidart 1973).

Rivet's work was characterised by a diffusionist approach to archaeology within culture-historical interpretations—where the studied features were always compared to similar ones from other cultures—aimed at answering questions in terms of cultural borrowing and migrations. In one of his earlier works, Rivet (1903:59) stated that, 'to rationally classify the Indian races of Ecuador, we need studies of different areas and a comparison of their customs and anthropometric measurements.' In his work, Rivet described customs, physical appearance, clothing, habitat, tools and the domestic economy of indigenous populations. With the eye of an ethnologist he revealed various cultural traits, which he complemented with the physical characterisation of a doctor, in order to contextualise the social group in its environment in the manner of a geographer.

Lowie (1946) recognised that Rivet played a considerable role, together with Lucien Lévy-Bruhl and Marcel Mauss, in stimulating the activity of the Institut d'Ethnologie de Paris. Rivet's ethnology and archaeology were privileged in a natural history of humans and of material culture which had no other theoretical preoccupations. The relationship between humans and environment and the evolutionary processes involved in local adaptive processes played a secondary theoretical role and did not develop in the region until the 1960s, under the initiative of the ecological-systemic research of North American authors.

According to Rivet (1957), the explanation of the heterogeneity of American people was that it was the result of 'waves' of population—Asiatics entering from Bering 20,000 years ago; Australian Aborigines arriving via Tasmania and the South Pacific Ocean; and Australasians, Melanesians and Polynesians via the Pacific Ocean. Rivet's work was in accordance with the diffusionist tradition of the Vienna School *(Kulturkreis)* in the 1920s, particularly as expressed in the research of Graebner (1911) and Schmidt (1937). Before Rivet, work by Imbelloni (1936) in biological anthropology had identified seven different human groups in the Americas, who were believed to be the result of different 'waves' of migration from various origins. This diffusionist approach was later applied to archaeology in South America with more detail by Menghin (1963), an Austrian scholar who lived in Argentina.

The comparative method within the framework of a diffusionist theoretical approach employed by Rivet was concentrated on different issues, such as biological characterisation (1903 and 1906), the study of languages (1920, 1921a, 1942, 1947a, 1948, 1949, 1951) and general aspects of culture (1903, 1905, 1906, 1924a, 1940, 1951, 1953). Rivet's diffusionist arguments paid particular attention to metallurgy (Rivet 1921b, 1923) and to the presence of Melanesian-Polynesian people in Latin America (Rivet 1926). Other French scholars, such as Métraux (1927), Créqui-Montfort and Rivet (1921), and Tastevin (1923), carried out investigations in America and shared Rivet's theoretical orientation.

On the one hand, Rivet's version of diffusionism was the theoretical orientation given to a large amount of research which took shape in *Les origines de l'homme américain* (1957). On the other hand, some methodological aspects of his comparative approach were criticised by his French colleagues who followed him into the American field. In the case of analogies and diffusionism related to the arguments of physical anthropology used by Rivet, Laming-Emperaire (1980:30) points out that these were unproven hypotheses, as the documents used were not sufficiently substantial and the logic of Rivet's arguments was uncertain. Laming-Emperaire (1980:75) later states even more strongly, that:

> Of these theories that have provoked such controversy, nothing more than their impoverishing effect upon the public and research remains. They teach the passive reader to think erroneously and to take for granted that which is barely even suggested. At the level of research, they respond to an incredible waste of time, money and often intelligence.

The humanist approach developed by Rivet in the growing field of South American anthropology was not independent, as Trigger (1992:15) remarks, from its historico-political context and even less from Rivet's own life, which was strongly affected by the two World Wars and particularly by Nazism. For this reason, Funari (1994) has suggested that the concept of deontology, taken directly from French humanism, is characteristic of this period of the 'beginning of the universitarian quest' in Brazilian archaeology.

Even though there were direct inheritors of Rivet's diffusionism, such as the Uruguayan Petit Muñoz (1971), who worked out his 'monist' (independent group) interpretation of the Charrúa group 'following Dr. Paul Rivet's (1957) method', this kind of theoretical diffusionist approach inevitably came to an end. Nevertheless, Rivet's work (1930) on the last Charrúa Indians, exhibited in a fair in Paris in 1832, and studied by scholars from the Musée d'Histoire Natural, remains a great testimonial to the extinction of this ethnic group. The Parisian end to the last Charrúa has became common place in public debate in the last fifteen years. The humanistic inheritance from the past provides new facets for modern Uruguayan identity, together with a rise in sensitivity in the population to the necessity of scientific research in anthropology and archaeology.

The influence on anthropology of humanist ethics and thought is difficult to separate from an acknowledgement of Rivet's contribution. The difficulty is compounded if we retrospectively recognise the general republican influence brought about by the French Revolution. From this perspective, the research of some anthropologists, such as Ribeiro (1968) in Brazil, and Vidart (1973) in Uruguay, had a particular impact on academic debate during the 1960s and 1970s in this region of Latin America. Archaeological and anthropological research appeared to a new generation of Latin American intellectuals as a suitable means of producing useful information for the reconsideration of historical, cultural and national identity. To compensate, the following era, corresponding to the military dictatorships, was lacking in ethical considerations. There was a greater preoccupation with the quality of archaeological data and with care in the application of techniques and procedures with which to produce that data. Nevertheless, the backdrop of the military dictatorships gave rise to a general suspicion concerning theoretical principles and the interpretation of the archaeological data, sentencing the discipline to a Spartan and ascetic activity of description and classification.

THE INFLUENCE OF PALAEOLITHIC STUDIES

Fieldwork

In the domain of fieldwork French influence is recognisable by the introduction of sophisticated and precise digging techniques. This kind of approach is characterised by the application of Leroi-Gourhan's (1950) 'ethnographic excavation'. The publication of 'Section 36' of the excavation at the site of Pincevent by Leroi-Gourhan and Brézillon (1972) had a particular impact on the archaeology of South America. The title of the publication, with one volume of text and another of 'occupation floors', is more than suggestive: *Essai d'analyse ethnographique d'un habitat magdalenien* (1972). From the pioneer excavations of the *sambaquis* (shell middens) of the coast of the State of Paraná in 1954 by Emperaire and Laming, to the establishment of the field school in Minas Gerais, the application of these techniques by the team led by

Laming-Emperaire showed that Brazilian archaeologists had quickly assimilated the new ideas. In particular, Prous' (1980, 1989) activity was essential in the diffusion of such techniques, from his early participation as a co-operative member in the French Missions, to his extensive work in the State of Minas Gerais.

In 1954 through the initiative of Paul Rivet, Paulo Duarte and José Loureiro, José Emperaire arrived in Brazil and, with Laming-Emperaire (1974), began a series of excavations of the Maratuá *sambaquis* in the State of Paraná (Emperaire and Laming 1956, 1958). From this date onwards there has been a dynamic relationship between French and Brazilian researchers (including the exchange of professors and students, field schools, courses in lithic typology, joint publications, etc.).

A clear indication of the influence of French archaeology on South American archaeologists is the papers aimed at the recognition of the applicability of modern principles of excavation in Brazil (e.g. Pallestrini 1975a, 1975b). In these papers, different kinds of Brazilian archaeological sites are studied according to the classificatory system elaborated by Leroi-Gourhan and Brézillon (1972) at Pincevent. The structures to which Pallestrini (1975a) draws attention constituted basic units of analysis in the systematic study of South American prehistoric habitats, as had been done for the European palaeolithic habitat. A study with a similar approach was carried out by Prous (1991) at the Abrigo Grande in Santana do Riacho site in Minas Gerais.

The application of French ethnographic excavation gradually became routine among university archaeologists. As such, the research of archaeologists from the Museo Paulista carried out on the coast of São Paulo (Guidon and Pallestrini 1973; Pallestrini 1975a, 1975b), and then in Piauí by Guidon (1986) was decisive in demonstrating the application of the new techniques. Recent studies show a greater effort in adapting the classic ethnographic technique by assessing and correcting its application (e.g. Pinheiro 1994).

In Uruguay during the 1970s the Archaeological Rescue' of Salto Grande Dam took place. It was an ambitious enterprise supported by UNESCO, beginning under the direction of Laming-Emperaire (1976) and finishing under the direction of Guidon (1979, 1987). This was the opportunity for many Uruguayan archaeology students to acquire training in fieldwork techniques. The excavations enabled the application of certain ethnographic excavation techniques in many archaeological sites in the Rio Uruguay and Rio Arapey areas. Some important sites, such as Bañadero, were, however, excavated with more traditional, and less precise, techniques, such as using 'artificial levels' of 10 cm thickness. Repercussions of this systematic approach can also be seen in the research carried out by Austral (1977, 1982) in Salto Grande and Rio Cuareim, where careful excavation techniques were applied. The same technical influence can be recognised later in the series of excavations carried out by the archaeological rescue unit in the basin of Merin Lagoon. Since 1986 the excavations carried out on mounds *(cerritos)* in the east of Uruguay were achieved with the application of the same refined excavation techniques (López 1992; López and Bracco 1994; López *et al.* 1988). The adequate application of ethnographic excavation was basic in the recognition of the quality of the data, particularly concerning the discussion and interpretation of archaeological remains (see López *et al.* 1988). As such, interpretations made by researchers in the 1960s (e.g. Schmitz 1976) concluded that the mounds were habitation platforms in flood zones. However, in the light of the information from detailed ethnographic excavation, an alternative model was proposed which was centred on the funerary and ceremonial function of the mounds (Curbelo *et al.* 1990; Femenías *et al.* 1990; López 1992, 1994; López and Bracco 1992, 1994).

Apart from excavation techniques, French-inspired fieldwork also had a particular impact on regional survey. Regional-scale analysis and the interrelationship between archaeology and geomorphology are both part of the essential methodological concerns of the French School and of its diffusionist perspective. Research by Journaux and Pellerin (1980) in the valley of the Rio Uruguay, and by Pellerin (1984) and

Arnaud (1983) in the southwest of the State of Piauí (Brazil) are clear examples of contextualising archaeological sites, both geologically and geographically. Such an approach, complemented by a wider environmental vision, as in the fieldwork of Laming-Emperaire (1978) and Prous (1991), allows for the surveying and more exhaustive recording of the location of the site, therefore facilitating a functional interpretation. Furthermore, this approach to surveying is essential to building a hypothesis concerning settlement patterns and palaeo environmental and geo-chronological sequences. The survey in the valley of the Rio Uruguay carried out by Pellerin (1987) turned out to be of vital importance for the approach to regional survey designed by Laming-Emperaire and Guidon (1977). Moreover, the study by Journaux and Pellerin (1980) demonstrates the application of geomorphologic survey carried out in aid of archaeological research.

Some local archaeologists began to present their data with a better description of the environmental context (see Schmitz and Baeza 1982; Bracco 1992, for the flood zones in the basin of Merin Lagoon). However, this is not only the result of French influence, but also of a global revalorisation of interpretation in an environmental context framework, where archaeological sites appear to be minimal and residual units of significance, subject to imperatives of another order and scale. These surveys have become unavoidable referential frameworks in regional research. This has been the case in São Raimundo Nonato (Piauí), in the project led by Guidon, and also in the valley of the Rio Uruguay. This kind of geo-archaeological survey also had a certain amount of success in research designs for projects developed in the State of São Paulo (Guidon 1964; Guidon and Pallestrini 1973), Salto Grande (Guidon 1987), and in the basin of Merin Lagoon (Bracco and López 1992a, 1992b). Independently of the presence of French researchers in South America, physical and human geography has always been the pith of academic curricula in universities with archaeologists, due to the fact that some South American archaeologists obtained their degrees in geography.

Another influence linked to the French palaeolithic tradition and fieldwork was Lartet's (1860) model of 'faunal chronology'. His principle, which recognises the variability and the temporal evolution of animals and human cultures, was essential for many pioneers and some archaeologists in building regional chronologies. The contemporary association of ancient humans with some fossil fauna had already been proposed by Lund (1837) for Lagoa Santa even before the articles of Boucher de Perthes (1847) appeared in France.

While attempting to establish the antiquity of humans in the La Plata River Basin, Ameghino (1880) proposed the association of extinct mammal remains with human artifacts in the so-called Pampean period (Pleistocene). On the one hand, this enabled a chronology to be applied to human tools by using faunal associations, while on the other, the principle enabled a relative antiquity to be proposed for the *sambaquis* of the Brazilian coast, interpreting the accumulation of fossilised oysters and cultural remains in the light of the example of Danish shell middens (Rath 1971 (1871)). Ameghino (1877) discarded a similar association for *boleadoras* (ropes with stone balls attached to entrap the legs of animals) and the strings of shells observed in Montevideo Bay.

With the evolution of excavation techniques, the uncovering of the archaeological record came under greater control. However, the influence that the association of human remains with extinct fauna has had on the imagination of South American archaeologists cannot be denied. In this sense, the remains of such a remote and different world needed to be diagnosed through the combined efforts of archaeology, geology and palaeontology. The French influence inspired a precise methodology for studying remains buried in geological deposits, which is inherent to the natural sciences and in the service of the human sciences.

Lithic typologies

Mortillet's (1869) work on the variation in the type of artifacts from different periods, allowing for their increasingly complex temporal ordering, signified a landmark in the development of archaeology. For Mortillet, technological evolution had no objective other than to confirm the general theory of human evolution. His essay was an inspiration for the isolated pioneers of Latin American archaeology at the end of the nineteenth century. The classification of carved stone material produced by pre-Columbian populations enabled such peoples to be characterised, and their degree of development recognised, by means of their most typical technology. In Argentina, Ameghino (1880) classified objects found in his research following typological criteria. In Brazil, Wiener (1876) pioneered lithic studies in the National Museum, where the French influence of the Director Ladilau Neto is known (Funari 1994:27). In turn, Figueira (1892), when preparing an exhibition of archaeological material from the Uruguayan territory to be shown in the Hispano-American Fair in Madrid, applied certain morpho-technical criteria in his analysis of archaeological remains. Analogical interpretations through comparative method appeared everywhere, especially concerning the palaeolithic character of carved stone tools (e.g. Mayntzhusen 1928). Moreover, by contrasting abundant finds of arrowheads, pioneers such as Taddei (1964) recognised the so-called 'primitive air' (archaic aspect) of most ancient industries. There was a horizon of pre-projectile lithic points, imitating *chelenses* and *achelenses* tools. An analysis of these characteristics was based on the definition of *catalanense* and *cuareimense* industries in the north of Uruguay (Bórmida 1964a, 1964b; Taddei 1964). These choppers and handaxes were often interpreted as being *achelense* or having a lower palaeolithic origin (Campa 1959). The French influence begun by Mortillet continued through articles by Breuil (1912), Bordes (1961), Leroi-Gourhan (1976) and Brézillon (1968), which were used by South American archaeologists in the 1960s in order to characterise the technological development of local societies.

The attempts to put into motion a method of analysis of South American lithic industries started in the 1950s with the descriptions by Laming-Emperaire (1967) of the lithic industries in southern Patagonia. The theoretical imperative that stands out is that typology is seen as a valid means of defining a culture, its evolution, and the spatial limits of its diffusion. The classification of tool shapes and other traits that specialists must carefully establish, allows for a deduction of information also valuable for establishing sequences or the conditions under which the artifacts were used. Here the key principle was describing more in order to know better. Experimental archaeology and ethnographic examples were also used. As such, the work during the last twenty years by Prous (1986–90) on the diffusion of lithic typologies based on French inspiration was decisive.

In the 1960s, the main need was perceived to be the possession of a vocabulary which would allow for more precise description and would simplify comparison with research on similar subjects. Thus Laming-Emperaire (1967) proceeded with her pioneering work consisting of a glossary and a method for the analysis of lithic industries. The decisive influence that Laming-Emperaire's approach had was due to the fact that lithic typologies at the time were almost non-existent. The vague use of terms from English or French did not help communication or detailed studies, which resulted, according to Laming-Emperaire, in a perfect situation to build freely a terminology and a typology, both useful to the specific archaeology of the various regions of South America. Laming-Emperaire's approach was not aimed at following any fixed tradition in archaeological terminology. Nevertheless, the influence of Brézillon (1968) and of Bordes and his quantitative method for recognising the relative importance of the components of the complete technical equipment of a group at a certain time is explicit. The influence of Leroi-Gourhan (1965a, 1965b, 1971a, 1971b) was essential in characterising the relationship between environment and technique.

The adaptation of European studies and typologies to South American industries was not solely due to Laming-Emperaire's initiative. Some years later, in the laboratory of lithic typology of the Rescue Archaeology Mission in Salto Grande in Uruguay, this approach was still being used. Authors in the 1960s, such as Taddei (1969), had already claimed that a shared terminology in the description of lithic material was a precondition for its better analysis, implicitly based on the work of Bordes and Brézillon. Lithic typologies have their inheritance in the 'fossil guides' which South American archaeologists began to investigate. Sometimes fish-tail projectile points were used to identify remote American palaeo-Indian periods (Schobinger 1969). At other times, the possibility that Patagonian arrowheads might identify cultural influences was examined (Taddei 1969, 1983). In Brazil, the influence of Laming-Emperaire and lithic typologies was very clear, and this influence continued with later researchers (e.g. Guidon and Pallestrini 1973; Prous 1980). Schmitz (1981:164) also points out such French influence, as do Martínez and Curbelo (1994:67), who recognise in Uruguay, 'the orientation of the French school for European prehistory, fundamentally the typological studies of Bordes, and the concept of clusters of artifacts as a strict indicator of a cultural manifestation'. Martínez and Curbelo (1994:67) have also suggested that the lithic analyses that developed from this perspective do not constitute an approximation of the cultural behaviour of groups, but mostly attempt to identify recurrent 'types' in order to characterise a particular 'culture' which could never be significantly defined archaeologically. Such a criticism has already been made of Bordes' *musterienses* cultures by Binford (1984) and Binford and Binford (1966).

Cabrera (1994), in his work on a 'technological sub-system in middle Uruguay', also recognised the French influence (e.g. Bordes 1961; Breuil and Lantier 1959) on the development of an analytical and classifying framework based on 'types'. Cabrera (1994:45) stated that: As such, circumstantial elements or elements of low frequency appear as significant traits, biasing in this way the outlook of the whole and the reality of the artifacts.' This influence can be seen, according to Cabrera (1994), in the work of Bórmida (1964a, 1964b) and Austral (1966, 1977), who propose technological models indicating the global nature of the cultural development of the area.

In the State of Minas Gerais, Prous' influence is of particular importance, whether through the French Mission of Abrigo Grande in Santa do Riacho, or in his research and teaching in the Secção Arqueologia, Museu de Historia Natural (Universidade Federal de Minas Gerais) in Bello Horizonte. Prous (1980, 1991) developed a model in which lithic typology articulates with repeated experimentation and with the study of traces of use in a demanding routine of analysis of the empirical referents used in the building of an archaeological discourse.

In other South American countries the influence of palaeolithic studies and the typological approach was significant. The theoretical orientation and methodological inspiration can be seen in the articles from the Lithic Convention (1970), held in Córdoba, Argentina, and in Taddei's (e.g. 1983) work in Uruguay.

During the period of the theoretical dominance of the *Kulturkreis* school, which was particularly strong in Argentina (see Menghin 1963), but had a clear influence in Uruguay (Bórmida 1964a, 1964b; Taddei 1969, 1983) and Brazil (Schmitz 1976), typological studies inspired by French authors were particularly useful. The combination of typological descriptions of lithic material and the building of culture-historical sequences was typical in the archaeology of the region. Furthermore, the classifying principles of lithic material were part of the global inheritance of the diffusionists from the River Plate. As such, Childe (1952) was also a necessary antecedent of the application of typologies, which was not, therefore, solely due to French influence.

Taddei (1983) proposed, under the influence of the culture-historical theoretical model, an archaeological sequence which started with a horizon of 'lower hunters' with a 'pre-projectile point' industry, characterised by tools of the *catalanense* type. This horizon was followed by the 'upper hunters' who produced lithic

projectile points; this horizon had regional modes, such as in the Tacuarembó River and in Cabo Polonio (Taddei 1983). The recognition of Patagonian influence using the typologies of projectile points was essential in explaining the degree of evolution and technological development of those groups which had adapted to open grasslands (the pampas).

Tixier's (1967) experimental archaeology is of interest because of its characterisation of the 'types' arising from typological analysis. The documentary film made by Tixier, *Prehistoire de la Pierre Taillé,* had a substantial impact on the first generation of Uruguayan archaeologists. The replicative work and traces of use analysis carried out by Prous and his team (Alonso 1991; Lima and Mansur 1986–90) in Minas Gerais consolidated this line of research.

The techno-typological and morphological principles of general classification were useful in the characterisation of zoolithic remains from the archaic period of the Brazilian south coast, as well as the 'engraved stones' from the archaic period of northern Uruguay (Femenías 1985). In close relationship with this orientation, classifying proposals for ceramic art appeared (e.g. Gardín 1976), which had a direct influence upon the South American archaeologists of the area, such as Durán (1985) and Balfet and Monzón (1992). However, the North American influence was decisive in this area through the active research promoted by the Smithsonian Institution (Meggers and Evans 1969).

THE STRUCTURALIST THEORETICAL INFLUENCE

Structuralism and rock art

Structuralist theory united a heterogeneous movement of researchers in closely related disciplines around the organising principles of the social and cultural domains. The novelty of the approach involved the possibility of abstracting from any particular historical and cultural context a deeper reading in terms of order and structure. As Hodder (1988) remarks, structuralists propose a new level of archaeological reality, a deeper one lying hidden behind the measurable evidence. The archaeologist's task is to make this level apparent. The contextual meaning of the empirical referent is a mediated (archaeological) version, which is also an average of different sub-systems (cultural and natural). Structural analysis, through the systematic and semiotic analysis of observable relations, attempts to reveal general rules of transformation and thus allow an approximation to the universal structures of the mind and of human culture. A new line of study of codes and symbolic structures arose from this perspective.

In rock art studies, the specific place of the influence of French theoretical archaeology can be clearly recognised. The orientation given to research into European palaeolithic art by Leroi-Gourhan (1965b) was decisive, although Laming-Emperaire also had an impact. Leroi-Gourhan's most substantial contributions involved the analysis and classification of geometric figures of the Franco-Cantabric zone as representations of a sexual kind, some of them interpreted as male and others as female, though he later became less optimistic concerning the possible level of interpretation of sexual symbolism (see Leroi-Gourhan 1982). Nonetheless, the application of his approach in the context of Brazilian rock art had methodological consequences for Brazilian archaeologists.

An antecedent of rock art studies was the research done by the Frenchman Vellard (1931) on petroglyphs in the zone of Araguaia. Pallestrini and Guidon (1975) proposed that rock art be included in the Programme of Research of the Museo de São Paulo. This initiative, coming from two disciples of Leroi-Gourhan, was followed by an important project on rock art (1971–3) in the caves and shelters of the region of Lagoa Santa directed by Laming-Emperaire (1974), and by intense research in the southeast of Piauí under Guidon (1975). Rock art studies remained active in Minas Gerais (Castellanos *et al.* n.d.; Prous 1980), and extended

to Goías (Moelhecke 1976), Rio Grande do Sul (Mentz 1969–70), Santa Catarina (Rhor 1969), Paraiba (Almeida 1978–80), São Paulo (Caldarelli 1978–80) and Pernambuco (Martin 1993). These studies tended to continue the interpretative orientation of Leroi-Gourhan (1965b), although with varying degrees of success. The scholars who applied the approach in Brazil gradually began to question the possibility of interpreting the significance of symbolism, as initially proposed by Leroi-Gourhan, and suggested alternative interpretative concepts and strategies (Guidon n.d., 1975, 1983; Prous 1989).

The proposals made by Leroi-Gourhan were of particular significance to the studies carried out by local researchers, who applied his structural analysis to a 'textual' reading of rock art. This was first done in Lagoa Santa (Anthonioz and Monzón 1978; Colombel 1978; Laming-Emperaire 1978; Prous 1989), and then in Piauí (Guidon 1975, 1976–80; Monzón 1980). Leroi-Gourhan's structural method of interpretation was cautiously softened as regards the universal interpretation of signs. His followers in America carried out a methodologico-theoretical exercise, which assumed the perspective of the structuralist paradigm (Guidon 1975; Laming-Emperaire 1978; Prous 1980), and projected it onto the South American empirical referents. As such, the work of Pessis (1982a, 1982b, 1983, 1992) had an impact on the relationships between the different levels and readings of the archaeological record and the scope of cultural interpretations, due to the construction of analytical categories on motif, repetitions and associations such as 'traditions', 'styles', and 'sub-traditions' (Guidón n.d., 1976–80; Prous 1989). Cultural chronology greatly benefited from the study of the superimposition of images and styles.

Colombel (1978) and Anthonioz and Monzón (1978) argued, with reference to the positioning of paintings at the site of Cerca Grande (Lagoa Santa), that the difficult access to the sites is in contradiction with an 'art for art's sake', which suggests the site should be interpreted as ceremonial or symbolic. Anthonioz and Monzón (1978) and Guidon (1975) produced a systematisation of some animal representations, from which they built a hypothesis that linked the type, redundancy, size and disposition of the represented animals to a hierarchical organisation of the animal kingdom with possible mythological inspiration, giving the jaguar particular significance. However, they did not risk an interpretation of the signs or geometric figures, as they understand that it is impossible to do so with certainty. As such, Guidon (1976–80:15) criticised the proposal made by Menghin (1952) on the style of traces of felines proposed for Argentinian Patagonia as highly speculative.

When dealing with sexual scenes in rock art in Brazil, Anthonioz and Monzón (1977) avoided neither the analysis of geometric figures that often appear in association, nor the symbolic meaning implied by the ethnographic information. Other studies which did not have an explicit interest in this kind of reading did not discard the possibility of interpreting some sexual symbols that might appear (Anthonioz and Monzón 1978).

The structuralist orientation in Brazilian rock art studies included from its inception a double approach that tried to contrast the hypothesis that had arisen from the structural analysis of rock art with ethnographic information. Laming-Emperaire (1975) came into contact with the studies of Reichel-Dolmatoff (1973) related to the ceremonial symbolism of the Tukano Indians at the request of Lévi-Strauss (1968) who had already made advances in the structuralist studies of ethnographic mythology. From this kind of study the figure of the jaguar stands out as central on a mythological level, although it is also conspicuous and abundant in rock art (Guidon 1978). In this sense, the analysis of rock art in Piauí has the support of important ethnographic studies done by Chiara and Heath (1976).

At present, the research of Pessis and Guidon and their search for concepts and formal criteria for the classification and interpretation of coded information in rock art have found particular receptivity in the universities of northeastern Brazil (Martin 1993). Pessis (1993) is developing an interesting theoretical and methodological approach through the comparative study of rock art using both a semiotico-structuralist and

an archaeological perspective. Pessis' research is directed at the recognition of a graphic identity, defined by technical, thematic and scenic aspects, as a means of approaching the relationship between a group of 'graphisms' and a particular social authorship. This archaeological approach to graphic identities is contextualised by broader research into prehistoric reconstruction on a regional scale.

Structuralism and archaeology: further aspects

Structuralist analysis, the aims of which are recognising universal categories of human symbolism, is complemented by social, cultural and psychological studies, also typical of structuralist thought as developed by various French researchers (Leroi-Gourhan 1965b; Lévi-Strauss 1949, 1964). This orientation goes beyond the natural scope of rock art and it openly appears in ethnography (Clastres 1974), with a remarkable influence from the linguistics of Barthes (1957) and the studies of mythologies by Lévi-Strauss (1968). Subconscious aspects that the structural analysis aims at bringing to the fore are present in the different spheres of culture. Furthermore, linguistic analysis allows for the establishment of relationships between mental characteristics, mythology, and rock art iconography.

The structuralist inspiration came not only from Leroi-Gourhan and his sexual symbols of European rock art. Lévi-Strauss (1949:383) discusses the basic difference between history and ethnology, pointing out that both have common objects of study, such as social life, but they are different in their choices of complementary perspectives, and while 'history organises its facts related to conscious expressions, ethnology does so in relation to the unconscious conditions of social life'. Placing the objectives of this type of ethnology on the same level as those of historical archaeology, Andrade (1989), inspired by Lévi-Strauss (1949), suggests that the objective of historical archaeology is to retrieve the subconscious aspects involved in the production of material culture in the archaeological record. This kind of orientation is also evident in the historical archaeology carried out in Uruguay by Fusco and López (1992), where the material culture retrieved at the excavation of Colonia del Sacramento was used to complement the historical documents concerning Spanish and Portuguese trading in the Rio de la Plata during the seventeenth and eighteenth centuries.

Another aspect of this theoretical influence that deserves particular consideration is the structural analysis of prehistoric habitats. Through careful excavation techniques it has been possible to recover the remains that structured prehistoric lifestyle, such as hearths of central social value, technology, and the significance and structure of the distribution of space (Curbelo *et al.* 1990; Guidon 1981). From this perspective, funerary studies obviously deserve renewed attention (Femenías *et al.* 1990; López 1992). The structured habitat tends to show the place of economy in sites at the crossroads of geography, both inside the settlement (the cave), and spaces outside which are recognisable by transported faunal material. Thus habitat appears to be a clear expression of the universal principles that dominate the structure of human spatial behaviour. As such, approaches to the interpretation of the internal structure and the function of some prehistoric settlements have often been explained in terms of the opposition/complementarity relationship of environments (López and Bracco 1994), as well as structures and areas of specialised activities (Curbelo *et al.* 1990).

CONCLUSIONS

The necessary conclusion is that the French influence on Brazilian and Uruguayan archaeologists can be seen in many instances, in various regions, and concerning diverse subject matters. The first aspect of the French influence on this region is the ethical dimension of research in the human sciences. Various studies

carried out by South American researchers were inspired and stimulated by Paul Rivet. From this perspective, archaeological information from different parts of South America was built and ordered on a global vision of the process of historical and cultural dominance, to which various South American authors added their specific perspective. Some studies were also the object of a theoretically specific development within the framework of a 'social engagement' of the social sciences that characterised the Latin America of the 1960s.

In Brazil, and to a certain extent in Uruguay, the transient identification of local archaeology with French archaeology dates from the end of the nineteenth century. This gave researchers the possibility of having continuous contact with the main representatives of various orientations, either through their regular activity in the French Missions of the 1950s, or by the continuous presence in Brazil, and to a lesser degree in Uruguay, of French researchers.

One area in which the influence of French archaeology has been outstanding is the methodologies and techniques used in the study of prehistory, especially stratigraphical excavation and lithic typologies. Regarding the studies of technology and lithic typology, the weight of French influence is clear although not always explicit. The pioneers of the end of the nineteenth century were well informed of all that occurred in Europe, and such contact has benefited from the remarkable improvement in transatlantic communication. Some publications by pioneers in the archaeology of the Rio de la Plata at the end of the nineteenth century were also published in Paris (see Ameghino 1880).

The classification of palaeolithic industries was very useful for local archaeologists from its inception. The development of other theoretical orientations, such as the hegemonic influence of the *Kulturkreis* school in Uruguay via Buenos Aires, was no obstacle to the combined usage of classifying principles initiated by Mortillet (1869). Nevertheless, Bordes' quantitative approach to the study of lithic industries in the palaeolithic period was greatly simplified in its application to Uruguayan prehistory (Taddei 1969). The decisive contributions were the studies of Bordes (1961) and Brézillon (1968), which were taken as actual models for the classification of prehistoric American industries. Gradually, the search for new strategies and questions, such as those asked by Binford about the ethnic interpretation of Bordes' archaeological types, has marked the relative end of French influence in this area. Nonetheless, serious documented studies from this period still appear as positive evidence of that influence. The work of Laming-Emperaire (1967, 1975, 1978, 1980) and Prous (1989, 1991) had a decisive influence on the first generation of Brazilian archaeologists.

As regards the generalised use of ethnographic excavation in Brazil and Uruguay, the situation is well documented. Nonetheless, in scientific publications the data obtained by detailed and extensive excavation using *décapage* are not always assessed and interpreted as they should be. As such, the technique of *décapage* is no longer used due to the academic prejudice of the old generation, and has been integrated into an optional framework by the new generation of archaeologists.

As concerns strictly theoretical influences on Brazilian and Uruguayan archaeology, the situation deserves particular consideration. Firstly, there are researchers who, because they belong to a research group with French archaeologists, have had closer contact with centres of theoretical and methodological innovations. Such is the case with the Brazilian researchers who worked with Laming-Emperaire and who studied with, among others, Leroi-Gourhan. These researchers, with direct links to French archaeologists, have had the opportunity of participating in various theoretical paradigms, and have been able to support the theory entirely with their own research. Secondly, there are a great many archaeologists who illustrate the situation already described by Politis (1988) regarding an archaeology developed far from the centres that produce the theory and methodology, where as a consequence archaeologists do not apply a given paradigm

in a 'pure' way. Many situations show that the influence loses shape when applied in combination with other orientations, as the lithic typologies of the 1960s and 1970s suggest.

Apart from theoretical influences, the existence of a language, procedures, and parameters of assessment of scientific use, connected with particular themes such as rock art, are strong indicators of French influence. A remarkable development in theoretical and methodological discussions can be seen linked with rock art studies. This shows an interesting theoretical development at a local level, something unusual in South America, but recently quite frequent among researchers in the northeast of Brazil. Rock art studies, whilst offering a more global reading of cultural similarities and differences throughout Brazil, have allowed for the application of intensive research procedures, and with this the benefit of a rich repertory of empirical referents that more adequately supports the eventual application of symbolic interpretations. 'Traditions' appear to work as cultural markers at an archaeological level, but they also show contents of ethnic value. Even though final results in structural analysis are not always apparent, they have been shown to be an interesting research tool for local archaeologists. The integration of archaeology and ethnography (especially mythologies) has also been stimulated by the French structuralist orientation.

In most Latin American universities the debate concerning New Archaeology places even greater stress on the necessity of a more explicitly scientific archaeology, with the explanation of phenomena through middle-range theories and the use of the hypothetical-deductive method in theory building (e.g. Watson *et al.* 1971). In this process, which occurred during the 1960s, theoretical necessity became more specific and French archaeology was given far less attention.

French influence on Brazilian archaeology still exists and reaches different parts of the academic French researchers withered after the last shared project (Salto Grande Rescue Project 1976–80). and scientific spheres. In Uruguay, however, the bonds that used to exist between Uruguayan and Nonetheless, the influence of French archaeology in Uruguay has been decisive at various times during its historical development.

ACKNOWLEDGEMENTS

To Gustavo Politis, Ben Alberti, Carmen Curbelo, Gustavo Verdesio and Leonel Cabrera, for reading matter and advice; honesty dictates, though, that responsibility for the text rests fully with the author.

REFERENCES

Almeida, R. (1978–80) 'Arte rupestre na Paraiba', in P.I.Schmitz, A.Sales and M.Barberi (eds) *Temas de Arqueología Brasileira* 4:59–60.

Alonso, M. (1991) 'Analise funcional de microtraceología', *Arquivo do Museo de Historia Natural* 12: 275–84.

Ameghino, F. (1877) *Noticias sobre Antiguedades Indias en la Banda Oriental,* Mercedes: Imprenta Aspiración.

—— (1880) *La Antigüedad del Hombre en el Plata,* Paris and Buenos Aires: G.Masson.

Andrade, T. (1989) 'A tralha doméstica en meados do século XIX: reflexoes da emergencia da pequenha burguesia do Río de Janeiro', *Dédalo* 1:205–30.

—— (1993) 'De Morcegos e caveiras a cruzes e livros: a representaçao da morte nos cemitérios cariocas do século XIX', *Anais do Museu Paulista* 2:1–69.

Anthonioz, S. and Monzón, S. (1977) 'Les representations sexuelles dans l'art rupestre brésilien', *Objets et Mondes* 17: 31–8.

—— (1978) 'Les peintures rupestres de Cerca Grande, Minas Gerais, Brésil', *Cahiers d'Archéologie d'Amérique du Sud* 6:35–295.

Arnaud, M.B. (1983) 'Un exemple de prospection régionale: São Raimundo Nonato', *Études Américanistes Interdisciplinaires* 2:58–67.

Austral, A. (1966) 'La talla por percusión', *Etnía* 3:9–20.

—— (1977) 'Arqueología de urgencia en el yacimiento de Bañadero, Departamento Salto, Uruguay', *Seminario sobre Ambiente y Represas, Montevideo* 2:3–20.

—— (1982) 'Informe sobre la II campaña arqueológica al Río Cuareim (Paypaso 1980)', *Anales del VII Congreso Nacional de Arqueología,* Montevideo: Centro de Estudios Arqueológicos. 3–7.

Balfet, B. and Monzón, S. (1992) *Normas para la Descripción de Vasijas Cerámicas,* Mexico: Centre d'Études Mexicaines et Centroaméricaines.

Barthes, R. (1957) *Mythologies,* Paris: Seuil.

Binford, L. (1984) *En Búsqueda del Pasado,* Madrid: Crítica.

Binford, L. and Binford, S. (1966) 'A preliminary analysis of functional variability in the Mousterian of Levallois facies', *American Anthropologist* 68:238–95.

Bordes, F. (1961) *Tipologie du paléolithique ancien et moyen,* Bordeaux: Institut de Prehistoire de l'Université de Bordeaux.

Bórmida, M. (1964a) 'Las industrias líticas precerámicas del Arroyo Catalán Chico y del Río Cuareim (Departamento Artigas, Uruguay)', *Revista de Science Prehistoriche* 19:195–232.

—— (1964b) 'El cuareimense', *Publicaciones del Seminario sobre Estudios Americanistas* 1:105–31.

Boucher de Perthes, J. (1847) *Antiquités celtiquens et antidiluvienne. Mémoire sur l'industrie primitive et les arts a leur origin,* Paris: Treuttel et Wurtz.

Bracco, R. (1992) 'Desarrollo cultural y evolución ambiental en la region Este del Uruguay', in *Ediciones del Quinto Centenario,* Montevideo: Universidad de la República.

Bracco, R. and López, J.M. (1992a) 'Rescate arqueológico de la Cuenca de la Laguna Merín: resultados de la etapa de prospección', in *Primeras Jornadas de Ciencias Antropológicas en Uruguay,* Montevideo: Ministerio de Educación y Cultura. 33–50.

—— (1992b) 'Prospección arqueológica y análisis de foto aérea (Bañado de la India Muerta y Bañado de San Miguel, Departamento Rocha)', in *Primeras Jornadas de Ciencias Antropológicas en Uruguay,* Montevideo: Ministerio de Educación y Cultura. 51–6.

Breuil, H. (1912) *Les subdivisions du paléolithique supérieur et leur signification,* Geneva: Association Préhistorique.

Breuil, H. and Lantier, R. (1959) *Les hommes de la pierre ancienne.,* Paris: Hachette.

Brézillon, M. (1968) *La denomination des objets en pierre taillée,* Paris: Gallia Conseil National de la Recherche Scientifique.

Cabrera, L. (1994) 'Subsistema tecnológico y estrategias adaptativas en el Río Uruguay Medio', in J.Lanata and L.Borrero (eds) *Arqueología Contemporánea* 5:41–50.

Caldarelli, S. (1978–80) 'Arte rupestre en São Paulo', *Temas de Arqueología Brasileira* 4:61–6.

Campa, R. (1959) 'Un yacimiento paleolítico en el Arroyo Catalán Chico, R.O.U.', *Estuario, Montevideo* 4 and 5: 43–51.

Castellanos, M., Prous, A. and Rocha, G. (n.d.) 'Primeiros resultados das pesquisas rupestres na regiao de Januária-Itacarambí (MG)', *Arquivo del Museo Histórico y Natural* 6 and 7:383–92.

Chiara, V. and Heath, E. (1976) 'On the absence of the bow and arrow in the rock paintings of Piauí. An ethnographical and social-anthropological contribution to the interpretation of rock paintings', unpublished paper presented at the 42 Congrès International des Américanistes, Lima, Peru.

Childe, G. (1952) *What Happened in History,* Harmondsworth: Penguin.

Clastres, P. (1974) *La société contre l'état,* Paris: Minuit.

Cleuziuo, S., Coudart, A., Demoule, J.P. and Schnapp, A. (1991) 'The use of theory in French archaeology', in I.Hodder (ed.) *Archaeological Theory in Europe,* London: Routledge. 91–128.

Colombel, P. (1978) 'Les peintures de Cêrca Grande, Minas Gerais Brésil (Description du site. Localisation des oeuvres…)', *Cahiers d'Archéologie d'Amérique du Sud* 6:23–32.

Courbin, P. (1981) *Qu'est-ce que c'est que l'Archéologie?,* Paris: Seuil.

Créqui-Montfort, G. and Rivet, P. (1921) 'La famille linguistique Takana', *Journal de la Société des Américanistes* 13, 1:91–102.

Curbelo, C., Cabrera, L., Fusco, N., Martínez, E., Bracco, R., Femenías, J. and López, J.M. (1990) 'Sitio CH2D01, Area de San Miguel, Departamento Rocha, Uruguay. Estructura de sitio y zonas de actividad', *Revista do CEPA* 17: 333–44.

D'Alembert, J. (1751) *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers,* Paris: Briasson.

Durán, A. (1985) 'Catálogo de formas enteras de cerámicas prehistóricas del Uruguay', unpublished manuscript, Facultad de Humanidades y Ciencias de Montevideo.

Emperaire, J. and Laming, A. (1954) 'La grotte du Mylodon', *Journal de la Société des Américanistes* 43: 173–206.

—— (1956) 'Les *sambaquis* de la côte meridionale du Brésil', *Journal de la Société des Américanistes* 45: 115–78.

—— (1958) 'Bilan de trois campagnes de fouilles archéologiques au Brésil meridional', *Journal de la Société des Américanistes* 47:99–120.

Femenías, J. (1985) *Las Piedras Grabadas de la Region de Salto Grande (Uruguay y Argentina),* Montevideo: Comunicaciones Antropológicas del Museo de Historia Natural de Montevideo.

Femenías, J., Lopez, J.M., Bracco, R., Cabrera, L., Martinez, E., Curbelo, C. and Fusco, N. (1990) 'Tipos de enterramiento en estructuras monticulares ("cerritos") en la region de la cuenca de la Laguna Merín (R.O.U.)', *Revista do CEPA* 17:345–58.

Figueira, J.H. (1892) 'Los primitivos habitantes del Uruguay', in *Uruguay en la Exposición Iberoamericana de Madrid,* Montevideo: Memoria.

Funari, P. (1994) 'Arqueologia Brasilera—Visao Geral e Reavaliacao', *Revista de Historia da Arte e Arqueologia* 1: 23–42.

Fusco, N. and López, J. (1992) 'Arqueología de los episodios coloniales en el Río de la Plata', *Revista de Patrimonio Cultural* 1:7–16.

Gardín, J.C. (1976) *Code pour l'analyse des formes de poteries,* Paris: Conseil National de la Recherche Scientifique.

Graebner, F. (1911) *Methode der Ethnologie,* Heidelberg: Winter's Universitats-buchhandlung.

Guidon, N. (1964) 'Nota prévia do Sambaqui de Mar Casado', in *Homenaje a Fernando Marquez-Miranda,* Madrid and Seville: Universidad de Madrid. 175–204.

—— (1975) 'Peintures rupestres de Varzéa Grande Piauí, Brésil', *Cahiers d'Archéologie d'Amérique du Sud* 3:1–174.

—— (1976) 'Definicao e delimitacao do estilo Varzéa Grande (ensaio)', *Journal de la Société des Américanistes* 65: 391–407.

—— (1976–80) 'Arte rupestre no Piuaí', in P.I.Schmitz, A.Sales and M.Barberi (eds) *Anuário de Divulgacao Cientifica* 4:15–28.

—— (1978) *Pinturas e Gravuras Pré-Históricas de São Raimundo Nonato, Estado do Piaui,* São Paulo: Missao Franco-Brasileira.

—— (1979) 'Mission de sauvetage archéologique a Salto Grande, Uruguay. Deuxième campagne de fouilles, 1978', *Journal de la Société des Américanistes* 68:335–40.

—— (1981) 'Datacoes pelo C14 de sitios arqueológicos em São Raimundo Nonato, sudeste do Piauí (Brasil)', *CLIO* 4: 35–8.

—— (1983) 'De la opérationnalité des classements préliminaires', *Études Américanistes Interdisciplinaires* 2: 1–22.

—— (1986) 'A sécuencia cultural de São Raimundo Nonato, Piauí', *CLIO* 3:137–44.

—— (1987) *Misión de Rescate Arqueológico de Salto Grande, República Oriental del Uruguay,* Montevideo: Ministerio de Educación y Cultura.

—— (n.d.) 'L'art rupestre: une synthèse du procédé de recherche', *Études Américanistes Interdisciplinaires* 1: 41–54.

Guidon, N. and Pallestrini, L. (1973) 'Documents pour la préhistoire du Brésil meridional (L'Etat de São Paulo)', *Cahiers d'Archéologie d'Amérique du Sud* 2:11–60.

Guidon, N. and Pessis, A. (1993) 'Recent discoveries on the holocenic levels of Sitio Do Meio rock-shelter, Piauí', *CLIO* 9:69–76.

Hammerly-Dupuy, D. (1952) 'Los pueblos canoeros de Fuegopatagonia y los límites de su habitat', *RUNA* 5:134–70.

Hodder, I. (1988) *Interpretación en Arqueología,* Barcelona: Crítica.

Imbelloni, J. (1936) *Epítome de Culturología,* Buenos Aires: Humanior.
Journaux, A. and Pellerin, J. (1980) 'Application des méthodes géomorphologiques aux recherches archéologiques: l'exemple des sites archéologiques de la region de Salto (Uruguay)', *Journal de la Société des Américanistes* 67: 215–25.
Laming, A. and Emperaire, J. (1956) 'Découvertes de peintures rupestres sur les hauts plateaux du Paraná', *Journal de la Société des Américanistes* 45:165–78.
Laming-Emperaire, A. (1964) *Origines de l'archéologie préhistorique en France,* Paris: Picard.
—— (1967) *Guia para o Estudo das Industrias Líticas da America do Sul,* Paraná: Universidade Federal Paraná.
—— (1974) 'Les peintures rupestres de Cêrca Grande, Minas Gerais, Brésil', *Cahiers d'Archéologie d'Amérique du Sud* 2:1–21.
—— (1975) 'Problèmes de préhistoire Brésilienne', *Annales* 5:1229–60.
—— (1976) 'Le plus ancien peuplement de I'Amérique', *Bolletin de la Société Préhistorique Francaise* 63: 280–7.
—— (1978) 'Les peintures rupestres de Cêrca Grande, Minas Gerais, Brésil', *Cahiers d'Archéologie d'Amérique du Sud* 6:2–22.
—— (1980) *Le problème des origines américaines,* Lille: École des Hautes Études en Sciences Sociales.
Laming-Emperaire, A. and Guidon, N. (1977) 'Problèmes de prospection dans la perspective d'un sauvetage archéologique. Rescate Arqueológico de Salto Grande (Uruguay)', unpublished report, École des Hautes Études en Sciences Sociales, UNESCO.
Lartet, E. (1860) *Sur l'anceinnete géologique de la spèce humaine,* Paris: Académie des Sciences.
Leroi-Gourhan, A. (1950) *Les fouilles préhistoriques (techniques et méthodes),* Paris: Picard.
—— (1965a) *Le geste et la parole II. La mémoire et les rytmes,* Paris: Albin Michel.
—— (1965b) *Préhistoire de l'art occidental,* Paris: Mazenod.
—— (1971a) *L'homme et la matère,* Paris: Albin Michel.
—— (1971b) *Milieu et techniques,* Paris: Albin Michel.
—— (1976) *La Prehistoria,* Barcelona: Labor.
—— (1982) *Cours de Préhistorie,* Paris: Collège de France.
Leroi-Gourhan, A. and Brézillon, M. (1972) *Fouilles de Pincevent: Essai d'analyse ethnographique d'un habitat magdalenien,* Paris: Conseil National de la Recherche Scientifique.
Léry, J.de (1994 [1578]) *Histoire d'un voyage faict en terre du Brésil,* Paris: Le Livre de Poche.
Lévi-Strauss, C. (1949) 'Histoire et Ethnologie', *Revue de Métaphysique et de Morale* 54:363–91.
—— (1964) *El Pensamiento Salvaje,* Mexico: Fondo de Cultura.
—— (1965) *Tristes tropiques,* Paris: Union General d'Éditions.
—— (1968) *Mitológicas I. Lo Crudo y lo Cocido,* Mexico: Siglo XXI.
Lezama, A. (1995) 'Procesualismo y post-procesualismo', in M.Consens, J.López and C.Curbelo (eds) *Arqueología en Uruguay,* Montevideo: VIII Congreso Nacional de Arqueología. 111–18.
Lima, M. and Mansur, E. (1986–90) 'Estudo traceológico de instrumentos en quartzo e quartzito de Santana do Riacho', *Arquivos do Museu de Historia Natural* 2:173–98.
López, J.M. (1992) 'Aproximación a la genesis y desarrollo de los cerritos del area de San Miguel, Departamento Rocha', in *Ediciones del Quinto Centenario,* Montevideo: Universidad de la República. 77–88.
—— (1994) 'Uso y organización del espacio en las tierras bajas de la cuenca de la Laguna Merín', *Revista de Arqueologia da Sociedad de Arqueologia Brasileira* 2:181–204.
López, J.M. and Bracco, R. (1992) 'Relación hombre-ambiente entre las poblaciones prehistóricas del Este de Uruguay', in O.Ortíz and Th.Van der Hammen (eds) *Archaeology and Environment in Latin America,* Amsterdam: University of Amsterdam. 77–89.
—— (1994) 'Cazadores-recolectores de la cuenca de la Laguna Merín: aproximaciones teóricas y modelos arqueológicos', in J.Lanata and L.Borrero (eds) *Arqueología Contemporánea,* Buenos Aires: Programa de Estudios Prehistóricos. 51–64.

López, J., Bracco, R., Femenías, J., Fusco, N., Cabrera, L, Curbelo, C. and Martínez, E. (1988) 'Aspectos metodológicos y técnicos en las excavaciones de sitios con montículos en la Cuenca de la Laguna Merín', unpublished paper delivered at the 11 Congreso de Arqueología Argentina, Buenos Aires.
Lowie, R. (1946) *Historia de la Etnología,* Mexico: Fondo de Cultura Económica.
Lund, P.W. (1837) 'Om Huler i Kalksteen i det indre af Brasilien, der tildees indeholde fossile kmokler-Anden Afhand ling. Lapa da Cerca Grande', *Det Kongelige Danske Videnskabernes Selskabs Naturvidesnskabelige og Mathematiske Afhandlinger* 6:307–32.
Maranca, S. (1975) 'Noçoes básicas para uma tipología cerámica', *Revista do Museu Paulista* 22:169–80.
Martin, G. (1993) 'Arte rupestre e registro arqueológico no nordeste do Brasil', *CLIO* 9:45–56.
Martin, G., Aguiar, S., Tadeu, P. and Victor, J. (1981) 'Estudos de arte rupestre em Pernambuco (II) a Pedra Furada em Venturosa', *CLIO* 4:19–34.
Martínez, E. and Curbelo, C. (1994) 'Teoría y método en las clasificaciones líticas de la cuenca de la Laguna Merín', in J.Lanata and L.Borrero (eds) *Arqueología Contemporánea,* Buenos Aires: Programa de Estudios Prehistóricos. 65–74.
Mayntzhusen, F. (1928) 'Paléolithique brésilien', in *23 Congrès Internationale des Américanistes,* New York: Société des Américanistes. 346–50.
Meggers, B. and Evans, C. (1969) *Como interpretar el lenguaje de los tiestos,* Washington: Smithsonian Institution.
Menghin, O. (1952) 'Las pinturas rupestres de la Patagonia', *RUNA* 5:5–22.
—— (1963) 'Industrias de morfología protolítica en Sudamerica', *Anales de la Universidad del Norte* 2: 69–77.
Mentz, P.A. (1969–70) 'Inscripçoes no Vale do Rio Caí, Rio Grande do Sul (Brasil)', *Anales de Arqueología y Etnografía de Mendoza* 1, 2:5–24.
Métraux, A. (1927) 'Migrations historiques des Tupi-guaranis', *Journal de la Société des Américanistes* 19: 1–46.
—— (1933) 'Un chapitre inédit du Cosmographe André Thevet sur la géographie et l'ethnologie du Brésil', *Journal de la Société des Américanistes* 25:31–40.
Moelhecke, S. (1976) 'Pinturas rupestres no Vale do Paranaiba, sudoeste de Goías', in P.Schmitz, A. Barboza and I.Wust (eds) *Arqueologia de Goías,* São Leopoldo: Universidade do Vale do Rio dos Sinos. 106–18.
Monzón, S. (1980) 'Des rapports entre les signes et les representations anthropomorphes dans les peintures rupestres du Brésil', *Journal de la Société des Américanistes* 46:125–40.
Mortillet, G. (1869) *Essai d'une classification des cavernes et des stations sous abri fondée sur les produits de l'industrie humaine,* Paris: Académie des Sciences.
Pallestrini, L. (1975a) 'Trabalhos de Campo em Arqueologia do Brasil', *Revista do Museu Paulista* 22: 108–55.
—— (1975b) 'Interpretação das estruturas arqueológicas em sítios do Estado de São Paulo', *Coleçao Museu Paulista, Série Arqueologia* 1:13–208.
Pallestrini, L. and Guidon, N. (1975) 'Noticiario do Museu Paulista', *Revista do Museu Paulista* 22:109.
Pellerin, J. (1984) 'Geología e geomorfología da regiao de São Raimundo Nonato, Piauí, Brasil', unpublished report, São Raimundo Nonato, Rapport de la Mission Franco-Brésillienne.
—— (1987) 'Descripción geográfica, geología y geomorfología', in N.Guidon (ed.) *Rescate Arqueológico de Salto Grande,* vol. 1, Montevideo: Ministerio de Educación y Cultura. 25–54.
Pessis, A.M. (1982a) 'Méthodes de documentation cinématographique en archéologie', *Études Américanistes Interdisciplinaires* 1:1–16.
—— (1982b) 'Methode d'analyse des representations rupestres', *Études Américanistes Interdisciplinaires* 1: 17–40.
—— (1983) 'Méthodes d'interprétation de l'art rupestre: analyses preliminaires par niveaux', *Études Américaines Interdisciplinaires* 2:23–35.
—— (1992) 'Identidade e classificaçao dos registros gráficos pré–históricos do nordeste do Brasil', *CLIO* 8: 35–68.
—— (1993) 'Registros rupestres, perfil gráfico e grupo social', *CLIO* 9:7–14.
Petit Muñoz, E. (1971) 'Los primitivos habitantes del Uruguay', in *Enciclopedia Uruguaya,* Montevideo: Arca. 3–19.
Pinheiro, P. (1994) 'Técnicas e métodos de escavaçao: o caso da Toca do Baixao do Perna I', *CLIO* 10: 145–73.
Politis, G. (1988) 'Paradigmas, modelos y métodos en la arqueología de la Pampa bonaerense', in H. Yacobaccio (ed.) *Arqueología Argentina Contemporánea,* Buenos Aires: Búsqueda. 59–108.

—— (1995) 'The socio-politics of the development of archaeology in hispanic South America', in P.Ucko (ed.) *Theory in Archaeology: A World Perspective,* London: Routledge. 197–235.
Prous, A. (1980) 'Fouilles du grand abri de Santana do Riacho (MG), Brésil', *Journal de la Société des Américanistes* 67:163–83.
—— (1986–90) 'Os artefatos líticos, elmentos descritivos classificatorios', *Arquivos do Museu de Historia Natural* 11: 1–90.
—— (1989) 'Arte rupestre Brasileira: uma tentativa de classificaçao', *Pré-História* 7:9–33.
—— (1991) 'Fouilles de l'abri du Boquette, Minas Gerais, Brésil', *Journal de la Société des Américanistes* 77: 77–109.
Prous, A. and Lopes, F. (1979–80) 'L'art rupestre dans les regions explorées par Lund', *Arquivo do Museu de Historia Natural* 4–5: Bello Horizonte. 311–31.
Quatrefages, A. (1867) *Rapport sur les progrés de l'anthropologie,* Paris: Impériale.
Rath, C. (1971 (1871)) 'Algumas palabras ethnologicas e paleontologicas a respeito da proivincia de São Paulo', *Revista do Instituto Histórico, Geográfico e Ethnográfico do Brasil* 24:207–306
Reichel-Dolmatoff, G. (1973) *Desana. Le symbolisme universel des indiens Tukano du Vaupés,* Paris: Gallimard.
Rhor, J. (1969) 'Petroglifos da ilha Santa Catarina e ilhas adjacentes', *Pesquisas de São Leopoldo* 19:1–30.
Ribeiro, D. (1968) *O processo civilizatório,* Rio de Janeiro: Civilização Brasileira.
Rivet, P. (1903) 'Etude sur les indiens de la region de Riobamba', *Journal de la Société des Américanistes* 1: 58–80.
—— (1905) 'Les indiens Colorados, récit de voyage et d'étude ethnologique', *Journal de la Société des Américanistes,* 2:177–208.
—— (1906) 'Cinq ans d'études anthropologiques en Equateur', *Journal de la Société des Américanistes* 3: 1–229.
—— (1908) 'Notes sur deux crânes du Yucatan', *Journal de la Société des Américanistes* 5:249–59.
—— (1920) 'Affinitées du Sáliba et du Piaroa', *Journal de la Société des Américanistes* 12:11–20.
—— (1921a) 'Nouvelle contribution a l'étude de la langue des Itomana', *Journal de la Société des Américanistes* 12: 173–95.
—— (1921b) 'Note complementaire sur la metallurgie sudaméricaine', *Journal de la Société des Américanistes* 12: 233–8.
—— (1923) 'L'orfévrérie précolombienne des Antilles, des Guayanes et du Venezuela, dans ses rapports avec l'orfévrérie et la métallurgie des autres regions américaines', *Journal de la Société des Américanistes* 15:183–204.
—— (1924a) 'La langue Tunebo', *Journal de la Société des Américanistes* 16:19–91.
—— (1924b) 'La langue Andaki', *Journal de la Société des Américanistes* 16:99–110.
—— (1924c) 'Les indiens canoeiros', *Journal de la Société des Américanistes* 16:161–82.
—— (1926) 'Les Malayo-Polinésiens en Amérique', *Journal de la Société des Américanistes* 18:141–277.
—— (1930) 'Les derniers charrúas', *Revista de la Sociedad de Amigos de la Arqueología* 4:5–117.
—— (1940) 'Le groupe Kokonuco', *Journal de la Société des Américanistes* 33:1–61.
—— (1942) 'Un dialect koka colombien: le Yurumangi', *Journal de la Société des Américanistes* 34:1–60.
—— (1943) 'Nouvelle contribution a l'étude de l'éthnologie précolombienne de Colombie', *Journal de la Société des Américanistes* 35:25–40.
—— (1947a) 'La langue Guarú', *Journal de la Société des Américanistes* 36:137–8.
—— (1947b) 'Les indiens Malibú', *Journal de la Société des Américanistes* 36:139–44.
—— (1948) 'La famille linguistique Guahibo', *Journal de la Société des Américanistes* 37:191–240.
—— (1949) 'Les langues de l'ancienne Diocèse de Trujillo', *Journal de la Société des Américanistes* 38:1–51.
—— (1951) 'Un nouveau dialect arawak: le Resigaro', *Journal de la Société des Américanistes* 40:203.
—— (1953) 'La langue Masubi', *Journal de la Société des Américanistes* 42:119–270.
—— (1955) *Coloquio sobre las Ciencias del Hombre,* Montevideo: Facultad de Humanidades y Ciencias.
—— (1957) *Les origines de l'homme américain,* Paris: Gallimard.
Schmidt, W. (1937) *Handbuch der Methode der kulturhistorischer Ethnologie,* Munster: Ascherdorff.
Schmitz, P.I. (1976) *Sítios de Pesca lacustre en Río Grande do Sul, Brasil,* São Leopoldo: Centro Anchietano de Pesquisas.
—— (1981) 'Industrias líticas del Sur de Brasil', *Pesquisas de São Leopoldo* 32:107–29.

Schmitz, P. and Baeza, J. (1982) 'Santa Victoria do Palmar: una tentativa de evolución del ambiente en el Arroyo Chuy, y sus vinculaciones con el problema de los cerritos', in *7 Congreso Nacional de Arqueología,* Montevideo, Centro de Estudios Arqueológicos. 112–27.

Schobinger, J. (1969) *Prehistoria de Suramerica,* Barcelona: Labor.

Taddei, A. (1964) 'Un yacimiento precerámico en el Uruguay', *Bassler Archiv* 12:317–72.

—— (1969) 'Un yacimiento de cazadores superiores del medio Río Negro, Uruguay', *Pesquisa* 20:57–78.

—— (1983) 'Industrias líticas del Uruguay y su relación con Pampa-Patagonia de Argentina', *Revista de Arqueología, Madrid* 21:24–31.

Tastevin, C. (1923) 'Les petroglyphes de La Pedrera, Río Caqueta (Colombie)', *Journal de la Société des Américanistes* 15:109–20.

Tixier, J. (1967) 'Procédés d'analyse et questions de terminologie concernant les études des ensembles industriels du Paléolithique recent et l'Epipaléolithique dans l'Afrique du Nord Ouest', in W.W.Bishop and J.J.Clark (eds) *Background to Evolution in Africa,* Chicago: Aldine. 130–56.

Topinard, P. (1884) *L'anthropologie,* Paris: Reinwald.

—— (1885) *Elements d'anthropologie générale,* Paris: Delahaye et Lecrosnier.

—— (1891) *L'homme et la nature,* Paris: Alcan.

Trigger, B. (1992) *Historia del pensamiento arqueológico,* Barcelona: Crítica.

Vellard, J. (1931) 'Petroglyphes de la region d'Araguaya', *Journal de la Société des Américanistes,* 33:139–49.

Vidart, D. (1955) *Coloquio sobre las Ciencias del Hombre (intervención),* Montevideo: Facultad de Humanidades y Ciencias.

—— (ed.) (1962) *Amerindia,* Montevideo: Centro de Estudios Arqueológicos y Antropológicos 'Dr.Paul Rivet'.

—— (1973) *10,000 Años de Prehistoria Umguaya,* Montevideo: Union del Magisterio.

Watson, P., Le Blanc, S.A. and Redman, C. (1971) *Explanation in Archaeology: An Explicitly Scientific Approach,* New York: Columbia University Press.

Wiener, C. (1876) *Estudo sobre os Sambaquis do Sul do Brasil,* Rio de Janeiro: Arquivos do Museo do Rio de Janeiro.

NOTE

1 The Colloquium of the Sciences of Man had the objective of receiving the official visit of Dr Paul Rivet and organising a debate between specialists around the following five issues: (1) the ideas and speciality of ethnography; (2) the importance of creating a Seminar of Human Sciences and a Museum of Ethnology in the Faculty of Humanities and Sciences; (3) the great Americanist problems of the human sciences; (4) the teaching of the human sciences in Uruguay; and (5) the necessity of organising group work and coordinating research.

Chapter Four
Archaeology as a social science
Its expression in Latin America

Iraida Vargas Arenas and Mario Sanoja

INTRODUCTION

The current social crisis in Latin America has greatly stimulated the urgent need to restructure the praxis of the individual and collective life around paradigms and theories that allow for the possibility of an organic response to the dilemmas that, notwithstanding the so-called death of ideologies and theories, threaten the physical and cultural survival of our societies. Latin American popularism, vernacular expression of a democratic socialism that split as a national political alternative from the mainstream of the Third Socialist International, created the ideological tools to maintain a no-commitment stance, essentially via the thesis of 'intellectual and political neutrality'. However, it is only within the neo-liberal paradigm that the thesis that proclaims the starting point of social research as pragmatic, individual attitudes centred in the domain of the immediate world and the conceptualisation of the permanent as an expression of the transitory is fully developed. Within this thesis formulae are produced that permit the resolution of specific problems without changing the essence of the whole. As such, nothing is solved and the previous situation becomes fossilised. Within such a framework, positivist archaeology—with its popularist background—deems it necessary to solve the historical fundamentals of the questions of identity through the intensification of fieldwork and the accumulation of data that broaden empirical knowledge of the ancient American indigenous and colonial societies. Occasionally, practical policies are undertaken to preserve the physical integrity of material culture, but little interest is shown in generating explanatory theories of ancient history, or the causes of the destruction of archaeological sites. Such a situation is exemplified by the absence of state educational policies oriented towards the creation of an historical consciousness. As such, positivist archaeology is not concerned with the present living conditions of the Latin American population. In addition, it does not consider that there may be a continuity between the remote past and the present, or that archaeology can produce anything relevant for the social crisis of the present; it merely seeks to provide data pertinent only to current academic interests.

An alternative to the positivist approach within the discipline is apparent in the theoretical and field research being carried out by several groups of archaeologists in Mexico, Costa Rica, Peru, the Dominican Republic, Puerto Rico and Venezuela. These groups are attempting to establish the epistemological basis for a social archaeology in Latin America in order to posit the processes of socio-historical formation of ancient populations—not only their technology—as a starting point in explaining the ulterior historical processes that led to the emergence of nations, national states, social classes, and cultural and national identities. The fundamental aim of this alternative archaeology is to insert the discipline within the social sciences in order to achieve the reformulation of the epistemological basis for education and the teaching of history—what we consider to be the fundamental part of the national consciousness of a society formed and informed by

its history and its destiny as a sovereign community within the integrated context of a new Latin America in the making.

Up until now, Latin America has been the testing ground for the various archaeological theories emanating from the universities and research centres of the first world. It is the place where archaeologists of the first world earn credit for subsequent academic promotion in their universities. Most Latin American archaeologists have adapted to these foreign creative processes which have become associated with the academics and political interests of particular groups. Social archaeologists, however, struggle to create an epistemic basis for understanding our own societies. That task is becoming increasingly urgent, since the technological and financial gap between our people and the people of the first world, coupled with the poverty and backwardness created by neo-liberal market policies, will never be filled if the present situation continues. A social and historical divide exists that Latin American archaeologists have to take into account in their scientific research (see Sanoja and Vargas 1990).

ANTECEDENTS OF A SOCIAL ARCHAEOLOGY IN LATIN AMERICA

The basis of archaeology as a social science is already present in the works of V.Gordon Childe, although one must also recognise his significant contribution to many other aspects within the discipline. Despite the tendency of many processualist archaeologists to ignore Childe's works, his intellectual influence has become apparent in the last twenty years. Several anthologies and biographies, as well as analysis of his ideas and work, have been published in the last decade. As a result of the publication of MacNairm's (1980) *The Method and Theory of V.Gordon Childe: Economic, Social and Cultural Interpretation of Prehistory,* several authors have qualified Childe as the 'great synthesiser of European prehistory', according to the meaning of the phrase as proposed by Flannery (1976). However, according to Trigger (1980:183–4),

> Childe's work was in the forefront of developments that have transformed archaeology… Although not without its shortcomings, Childe's work challenges modern archaeology to shape goals for their discipline that in the long run will enable archaeology to make a distinctive contribution to social science.

Childe held the conviction that the archaeological record could and ought to be used to trace the origin and prehistoric developments of specific peoples. He considered the development of society to be the central focus of historical and archaeological explanation, and Marxism as providing the epistemological basis for viewing social reality, and the study of data as the starting point of archaeological theory (Trigger 1980: 170, 177). Archaeological results could provide, in the long run, a basis for understanding human behaviour and the dynamic of social changes. This facet of Childe's thought attracted the interest of many Latin American archaeologists who were, and are, trying to define their position as political agents of social change in their struggle against the neo-colonial and (now) neo-liberal exploitation of their society's human and material resources.

Childe was the first archaeologist to use an explicit methodology as well as a clearly defined social and historical theory, and can be considered to be the most important contributor to archaeological methodology during the first half of the twentieth century. Practically all the theoretical and conceptual foundations of contemporary archaeology are present in Childe's work. Most of what is actually being done and said in archaeology, including the principal concepts of 'New Archaeology' (see Binford and Binford 1968), refers to a set of ideas and methodological considerations that were elaborated by Childe in the first decades of the century.

Childe's interest in objects transcended the objects themselves and addressed the question of the progression of the peoples and societies that made and utilised them. It was an approach arising from his Marxist beliefs, although tinged by the anthropological thought of the epoch. He himself stated in retrospect: 'I took from Marxism the idea of the economy as an integrating force of society, but at the same time I was influenced by the functionalist ideas of Malinowsky' (as cited in Pérez 1981:358). Absorbed in his studies on social variation as based in historical materialism, Childe exposed the relationship between the material base, social relations of production and ideology. For his archaeological analysis, he used as a frame of reference the theoretical and methodological vision offered by historical materialism, combining European archaeological taxonomies with an explanation of archaeological phenomena. As such, he substantiated the concept of archaeological culture, stating that prior to describing the archaeological record of a given site it was necessary to determine the kind of culture to which the site pertained. According to Childe, culture was a concept intimately linked to the production of material life. Thus the material culture recovered by archaeologists represents the concrete manifestation of the tools of production, or the material set of productive activities, that characterises the mode of life of a particular population.

Since the 1960s, Latin American social scientists, engaged in a search for new theoretical discourses, have explored the potential contribution of historical materialism, referring to categories such as 'social and economical formation' and 'mode of production', defined and utilised by Marx since 1857. Latin American archaeology in the 1960s, deeply influenced by Childe's work, also attempted to explain historical processes in the indigenous societies that preceded European colonisation. The leaders of this movement were groups of archaeologists working in isolation in their own countries, although they maintained sporadic contact at international meetings. At the Congress of Americanists (Lima, Peru, 1970), which was fostered by the expectations of the progressive Peruvian military regime, a small number of Latin American archaeologists met in a symposium in order to develop an organised, complete explanation of American socio-economic formations. The conclusions from this symposium were reflected in the publication of three books: *La Arqueología como Ciencia Social* (Lumbreras 1974); *Antiguas Formaciones y Modos de Producción Venezolanos* (Sanoja and Vargas 1974); and *Marxismo y Sociedades Antiguas* (Bartra 1975). Furthermore, the renowned Mexican archaeologist José Luis Lorenzo organised a meeting on social archaeology (Teotihuacan, Mexico, 1975) sponsored by the Instituto Nacional de Antropología e Historia (INAH), with the participation, among others, of Luis Lumbreras (Peru), Eduardo Matos (Mexico), José Pérez (Argentina), Julio Montané (Chile) and Mario Sanoja (Venezuela). The general conclusions of the meeting were published by the INAH in *Hacia una Arqueología Social* (Lorenzo 1976). The work of Latin American social archaeologists became oriented, on the one hand, towards the conceptual discussion of historical materialism applied to archaeology (Bartra 1975; Lumbreras 1974), and on the other hand, to the interpretation of archaeological data using an historical materialist approach (Sanoja and Vargas 1974). Further books were published following the general guidelines already established (Bate 1977, 1978; Montané 1980a, 1980b; Veloz Maggiolo 1976).

During the 1980s, thanks to Bate's initiative and the support of the Instituto Panamericano de Geografía e Historia, it was possible to organise a group of Latin American social scientists composed of Luis Lumbreras (Peru), Luis Felipe Bate (Chile), Eduardo Matos (Mexico), Hector Díaz Polanco (Mexico), Marcio Veloz Maggiolo (Dominican Republic), Mario Sanoja (Venezuela) and Iraida Vargas (Venezuela) to meet and discuss the theoretical and conceptual basis of Latin American social archaeology (Oaxtepec, Mexico, 1983 and 1987; Lima and Cuzco, Peru, 1984; and Caracas, Venezuela, 1985). The proceedings of these meetings have not yet been published (manuscripts do exist, see Bate *et al.* 1983, 1984, 1985) although Vargas (1990) has outlined the fundamentals of the theoretical approach developed, and Bate (1998) has published the most recent contribution.

Through these meetings, the so-called Oaxtepec group, who were later joined by Mexican archaeologists from the Evenflo group (including Manuel Gándara, Fernando López and Griselda Sarmiento), reached a philosophical definition of historical processes which was clearly along the lines of historical materialism. After extensive discussion, the group arrived at certain basic agreements about the meaning of the categories and concepts necessary to explain historical development, as well as discussing a variety of topics covering the theoretical and methodological aspects of the interpretation of regional case studies. Since then, the group has been recognised by the community of Latin American archaeologists, and is known as the Grupo Oaxtepec. The group has produced three monographs, which represent a contribution to the reformulation of historical categories, as well as to the improvement of the accuracy of such categories for the generation of explanatory theses on the socio-historical development of pre-capitalist American autochthonous societies.

Another group was formed in 1983, this time by archaeologists working in the Caribbean and sponsored by the Fundación de Arqueología del Caribe. The team was composed of Marcio Veloz Maggiolo (Dominican Republic), Agamemnon Pantel and Edgard Mayz (Puerto Rico), Oscar Fonseca (Costa Rica), Carlos Angulo (Colombia), Mario Sanoja and Iraida Vargas (Venezuela). Most of the meetings were held on Vieques Island, Puerto Rico (1983, 1984, 1985 and 1986), with the most recent held at Rio Caribe, Sucre State, Venezuela, in 1987. The Grupo Vieques produced and published the proceedings of three of its meetings: *Hacia Una Arqueología Social* (Fonseca 1988), *Revision Crítica de la Arqueología del Caribe* (1988), and *Relaciones Hombre Naturaleza* (Sanoja 1987), in which the authors examine diverse subjects ranging from the problems of the explanatory categories of socio-historical development, through the formulation of concepts such as 'daily life' and 'domestic space', the study of local and regional case studies and detailed revisions of the accumulated knowledge on Caribbean archaeology, to pointing out critical aspects of the historical periods and geographical areas of the region. Furthermore, the group organised intensive discussions on the classificatory systems used in archaeology, and on historical and cultural heritage.

A further group of archaeologists particularly active in social archaeology created the Sociedad Venezolana de Arqueólogos (SOVAR) in 1982. Since 1985, SOVAR has been producing documents on theoretical issues and applications of historical materialism within archaeology in its journal, *GENS,* including several monographs on Venezuelan archaeology (6 volumes, 16 issues, 1985–92).

Other national groups with similar interests were created in Peru—the Instituto de Estudios Andinos, with an archaeological journal *INDEA* (Alvarez and Fiore 1993)—and the Evenflo working group organised at the Escuela Nacional de Antropología e Historia, Mexico (Boschin 1993; Fournier 1992, 1995; Gándara 1987, 1992, 1993, 1994, 1997; Gándara *et al.* 1985; Lazcano 1993, 1995; López *et al.* 1988; López Aguilar 1984, 1990; Sarmiento 1987, 1992, 1993, 1997; Terrazas 1992, 1993, 1994, 1997; Tiesler 1994).

Most of these groups were formed for the purpose of establishing a coherent corpus of historical categories that would enable scientists to interpret archaeological material according to the principles of historical materialism, reflecting the interest expressed by several Latin American archaeologists since 1970. On this subject we wrote that

> one of the most pressing problems faced by social archaeologists attempting to expose and analyze the characteristics of the historical processes that have determined the existence of a particular society, resides in the scarce theoretical development of the conceptual and operative tools that can successfully replace the concepts and classificatory schema of functionalist archaeology…Historical materialism, insofar as the study of ancient societies in the New World is concerned, has not been able —with a few exceptions—to develop a methodology that permits the analysis of primary data

> resulting from the direct observation of social facts…a methodological development that will only be possible through the experimental application of historical materialism to perceivable reality.
>
> (Sanoja and Vargas 1978:19)

Furthermore, Bate (1978:12) has written that:

> the traditional concept of culture used by archaeologists and anthropologists retains, most often in a partial way, an objective phenomenalist view of society. It is necessary to strive for its reformulation…from the point of view of its congruent integration within the general theory of historical materialism which is concerned with the objective dialectics of society…This problem has not yet been solved by historical materialism.

Lumbreras (1981:29) refers to similar issues and recognises the need to redefine or to replace some historical categories such as 'culture'.

Social archaeology in Latin America is not striving to 'discover' new historical categories, but rather is trying to reformulate existing ones and develop the theoretical potential of others that have been used in a tacit way. Such is the case with the categories of 'mode of life' and 'mode of work'. Veloz Maggiolo (1988) and Sanoja and Vargas (1974, 1978, 1992) acknowledge that the use of categories such as 'mode of production' and 'socio-economic formation' is necessary in archaeology, since the explanatory categories of traditional ethnology are not adequate for a complete understanding of pre-classical societies. Furthermore, the reformulation of categories such as 'mode of life' and 'mode of work' are urgently needed in what the authors call 'tropical archaeology'. Within tropical archaeology the nature of the archaeological contexts leads to the privileging of the archaeology of daily life, and 'compels the search for minimal facts, scarce data …the most quotidian part of vital human labour' (Veloz Maggiolo 1988:103). In Mexico, young archaeologists such as Lazcano (1993, 1995) apply the 'mode of life' concept to the study of habitational complexes in the Late Post-Classic of the Valley of Mexico.

Sanoja and Vargas (1978:19) and Veloz Maggiolo (1988:96–7) have demonstrated that Marx and Engels were already using the concept of 'mode of life' in *The German Ideology* (1982), although they had not explicitly defined it. In their discussion on the existence of the category of 'mode of life', Sanoja and Vargas (1978:19) state that, for Marx and Engels, 'the concept of mode of production, more than a formal, classificatory historical category, is a determined praxis which it is possible to understand starting from the mode of living'. From the above, it may be inferred that Marx and Engels were conscious of a difference existing between the general category of 'mode of production' and the particular category of 'mode of life'; the latter being that which renders an account of the specific mode of production adopted by a determined society. The philosophical ideas of Engels, particularly about cultural evolution, have been revisited by Terrazas (1994), who also further developed Engels' comparative critical analysis of evolution, palaeoanthropology and biosociology.

The formulation of the category of 'mode of work' in archaeology was due to Veloz Maggiolo (1988:102), who claims that this category had been employed but not explicitly defined by Marx. According to Veloz Maggiolo, the category 'mode of work' was necessary in order to recognise 'the practical and cultural features considered as fundamental for the improvement of the quality of the relations of production', and that, 'the cultural variables of a mode of life…are intimately linked to the functionality of the modes of work'. Bate (1978) not only defines culture as an historical category integrated within the tri-categorical system, but he also revises and refutes the existing concept of culture as a total system, which is a central thesis of New Archaeology.

The concept of archaeology as a social science has been furthered by other academic groups in the USA and Europe. At the 1995 meeting of the Society for American Archaeology in Minnesota, a symposium on social archaeology was organised with the participation of US and Latin American scholars. In Spain, in the Department of Prehistory and Anthropology, Universidad Autónoma de Barcelona, undergraduate and graduate teaching and research have been organised around the theories of social practices and the theories of the production of social life (Castro 1996, in press), and on the archaeological indicators of discrimination against women as a source of labour since the palaeolithic period (Estévez and Vila 1995; Vila and Argelés 1993). A joint academic programme of the Universidad Autónoma de Barcelona, the Universities of Girona, Granada and Santander (Spain), the Escuela Nacional de Arqueología (Mexico), the Universidad Central de Venezuela, the Universidad Central de Costa Rica, and the Universidad Autónoma de Nicaragua, has made it possible to organise a School of Archaeology based on the epistemic paradigm of social archaeology at the Department of History, Universidad Nacional Autónoma de Mexico.

THE THEORY AND PRACTICE OF ARCHAEOLOGY AS A SOCIAL SCIENCE

The object of study of archaeology as a social discipline is society in its processes of formation, its interconnections, and laws. Archaeology produces specific contributions to the common objective of the social sciences, which is to investigate and explain the ways in which the essential regularities of social processes of a historical character are accomplished in a particular society. Parallel with this common objective, archaeologists' interest in studying ancient societies should not be driven by the antiquity, the exoticism, or the cultural variability of the observed material. On the contrary, such interest must be motivated by the fact that past societies are the basis for the process that in the long run leads to the formation of a national society. Thus archaeology as a discipline occupies a place of strategic importance, since its results are pertinent to the formation of national consciousness. Nonetheless, archaeology's inclusion in academic teaching programmes, research and promotion requires the development of an organic theory of the historical formation of different societies which conforms to the archaeological material. We must theorise about what we need and what we want to know. We must create particular theories and methods that permit us to study our own societies as organic totalities in order to understand the present state of our nations.

Up to the present, most Latin American archaeologists have adopted culturalist and functionalist theories, or their 'neo' manifestations, in order to comprehend their own reality. However, the epistemic nature of these theories was devised to understand a historical reality based on a dual historical partition. In the positivist, or neo-positivist, paradigm, archaeology deals mainly with societies that are considered a mere appendage of the contingent factors animating changes in ecosystems. The human labour invested in the creation and improvement of the conditions that allow for the reproduction of society is conceptualised as the effort exerted by individuals to intensify their exploitation of the environment via the process of adaptation. Consequently, all the social processes that occur in 'real' history are relegated to a second plane within the panorama of history developing in such a way. The history of society is thus perceived as a permanent contradiction between environment and society, whereby changes are related to magnitude and not to quality. We believe that the environment-society contradiction is dominant in those societies with little development of their forces of production. However, in terms of dialectical logic, the dominant contradictions do not stay stable throughout the entire history of societies, and the poles of the contradiction are not always quantitatively the same. In every historical period and society the environment-society contradiction is resolved by the development of the forces of production. During and after such development the inter- and intra-community social relationships transform themselves, becoming increasingly more

complex, in order to protect the human group from environmental and social contingency. This occurs via the development and reorganisation of the labour force, and the qualitative and quantitative expansion of all the other material and non-material aspects of society. The intensification of social relationships manifests itself in the intensification of social contradictions. Wherever the level of social contradiction is low, the historical changes will proceed slowly; when it intensifies, the rate of historical change accelerates (see Gándara 1992, 1994).

THE CATEGORICAL SYSTEM OF SOCIAL ARCHAEOLOGY

The categorical system used by social archaeology consists of the following: socio-economic formation; mode of production; mode of life; mode of work; and culture. Such a system permits an account of the development of a society according to its intrinsic dialectical development. The system attempts to explain society as a concrete totality, as a structured whole in transformation. As such, social archaeology does not conceptualise society as something chaotic or immutable, but rather, as a totality where every part can only be understood as a structured component of the whole. Thus every category within the system explains processes of the totality that by necessity will reflect that organic structure (Bate 1978; Vargas 1990).

The process of representing a socio-economic formation attempts to abstract the totality of the fundamental elements that constitute social reality; it refers to all those elements that exert a decisive influence on social development. The category of 'socio-economic formation' explains the more general processes, those that are a major causal factor in determining social reality, although this does not mean that secondary properties in organic bondage with the fundamental processes do not exist. The characteristics of the secondary properties are determined by their level of subjugation to the major causal factors and the extent of their organic bondage with the fundamental properties. Every level of bondage of the secondary properties with the fundamental properties is represented by a category. The category of 'socio-economic formation' embraces all those processes whose qualities determine its nature. The category also encompasses the category of 'mode of production', which alludes to all the economic processes organised within a system of diverse types of social relationships, and exerts a fundamental, dominant type of relationship that qualifies the entire system. The mode of production represents the sphere of economic production of material life, determining the social whole within a given socio-economic formation. The socio-economic formation also embraces the sphere of the biological reproduction of the human species—also referred to by Bate (1978) as *género de vida* (mode of life)—as well as the spheres of the superstructure and social consciousness (see Montané 1980a; Vargas 1990).

The use of the category of 'mode of life' acknowledges that social processes have differential rhythms of structuration and change. With this category we endeavour to formalise the middle links of a society that mediate between its more general and its more specific levels of being. Through the mode of life we recognise particular ways of organising material and non-material human activity, as well as certain cadences of social structuration. The use of the category of 'mode of work', however, endeavours to explain certain particular and concrete ways in which the 'mode of production' is expressed (see Vargas 1988, 1990; Veloz Maggiolo 1988). The mode of life expresses the transition between the general and the singular and, related to both extremes, the category can refer to diverse degrees of generality in the mediation between social formation and culture, to be specified in each actual analysis. The main factors affecting the particularities of each specific analysis are: the specificities of technical and social organisation conditioned by features of the natural environment where the human group strives to transform that environment; the specificities of social organisation and dynamics responding to historical contacts between social groups; and the differential historical rates of development and viability of change for the social group as

conditioned by its structural particularities. The particularities manifest themselves as 'lines' of modes of life, which in the historical dimension might also be referred to as being qualitatively distinguishable phases in the development of a social formation and its mode of production. In societies where specific forms of production are internally differentiated, one may have to make a distinction between the mode of life as a particularity of the social whole, and the modes, or sub-modes, of life as particularities of the social groups integrating the social whole. In this sense, the mode of life could be comprehended as the result of the particularities of each sub-mode of life, as well as the way they are integrated within the totality (Bate 1989). Fournier (1992, 1995) has done research on operative concepts based on ethnoarchaeological research.

For social archaeology, 'culture' is perceived as the singular, phenomenalistic expression of the fundamental contents of the socio-economic formation. The category of 'culture' formalises the existing nexus between the general processes of development proper to a given socio-economic formation and its phenomenalistic expressions. 'Culture' refers to a multifaceted singular set of phenomena exhibited by a given society as a manifestation of concrete solutions to the general needs of historical development (Bate 1978, 1989). Reciprocally, the category of 'socio-economic formation' alludes to the general system of the essential components corresponding to the cultural form. Bate (1978, 1989) considers sub-culture to be a set of phenomena particular to a social group which is part of a larger society. He also considers the main—but not exclusive—criteria in distinguishing social groups as sub-cultures to be their position in the system of social relations of production, their position in the division of labour, and their particular historical and geographical origins and location (Bate 1978, 1989).

The mode of life has its concrete reference in the category of 'daily life', which subsumes both macro- and micro-history. The category of 'daily life' is the praxis of the mode of life. It is the expression of all the particularities animated by social consciousness, whereby the quotidian materiality of social life is objectified. Such a materialisation exists and can be rescued and analysed in the social manifestations of every epoch. In the case of archaeology, refined techniques in the excavation of living spaces have allowed complete contexts of daily life to be rescued (Sanoja and Vargas 1990; Vargas 1990; Veloz Maggiolo 1988). Conceptualisations of similar contexts based on culturalist or ecologist approaches are oriented towards the description of singular cultural adaptive sets, where human labour is not considered as a causative factor, but as a factor caused by a conjunction of external contingencies alien to social life. For social archaeology, however, daily life—the materialisation of vital social experience—assumes in itself and for itself the multiple determinans that allow such experiences to become concrete. As such, daily life is the starting point for understanding real history, where the infinitely big and the infinitely small are subsumed.

Socio-economic formation, mode of production, mode of life, mode of work, culture and daily life together form a causal sequence for the explanation of history, which is valid for any time or place. That causal sequence opens up a common semantic space of shared signification between the different disciplines of the social sciences that facilitate the integration of knowledge and break away from the self-contained chronological blocks into which history has been divided by culturalist-functionalist theories and the universal, a-historical, neo-functionalist-adaptive models of neo-positivist archaeology. Such a division of history has influenced the political perception of the process of identification among the peoples that have been, and continue to be, the object of study of anthropologists of the first world. The concept we propose for the study of history alludes also to other realities. If the planes of social life reflect the processes of the determination of the base-superstructure, then the daily life, where all those determining factors are generated, is the product of a complex network of social antagonisms whereby the structure and consciousness move closer together, become interlinked and finally interdetermine one another. Society is

eminently dialectical, and its complexity is more clearly perceived in daily life. Even if social archaeology had perfected the theoretical analysis of daily life, up to now the interest of most social archaeologists has been oriented towards macro-historic analyses of society.

From the extensive theorisation of society produced by Marxism, it is possible within social archaeology to develop methods of analysing aspects of the daily life of human groups, which up till now has been only tangentially explored. One such aspect is the materiality of the locus of authority that is already present in the development of certain modes of life of hunter-gatherers (Sanoja and Vargas 1995), and continues to enrich and transform itself until becoming the locus of power in the hierarchical modes of life of the tribal formations. The study of authority and power, a subject explored in various international symposia on social archaeology, opens up the epistemic basis of the discipline to reformulation, as well as encouraging the conceptualisation of archaeology's object of study.

In previous work (Sanoja 1988) we developed the concept of domestic space, whereby we discussed the possibility of a social 'reading' of the so-called 'structure' of archaeological sites. What Binford (1968) called the 'archaeological structure' represents the concrete form of daily life, which is the result of everyday activity that stamps the mark of the individual, or of collective activities, on living space. The careful mapping of the contexts and associations of tools of production, culinary refuse, activity areas, tool-manufacturing processes, and the comparative analysis of their form and function via the patterns of wear on the active surfaces, may help in the development of an analysis that demonstrates the differentials and isomorphisms that characterise the dialectics of the material base of a given social group. Furthermore, such an analysis may establish a solid basis for the analysis of the contents of the social consciousness and the super-structure that sanction, and in some cases over-determine, the contradictions that dynamise the material base.

An example of how the elaboration of a social archaeology can be applied in practice is the work done by Sarmiento (1987), who presents a theoretical proposal on the origin of chiefdoms in which he confronts the data at a world level. A further example is provided by Vargas' (1989) research related to chiefdom societies in the Caribbean. Sarmiento (1993, 1997) has developed her theoretical research into the ontology of hierarchical societies from the perspective of social archaeology. Especially relevant is the work of López Aguilar (1984, 1990), and Gándara (1987, 1994) on archaeological theory, which deals with the process by which the archaeological record is formed, as well as with the development of middle-range theories. In the area of social aesthetics, the work of Delgado (1989) has opened up a promising field of research into the historical development of concepts within egalitarian and hierarchical tribal societies in Venezuela.

Consequently, it has been possible to study the development of authority among early hunter-gatherers in archaeological sites located on the northeastern littoral of Venezuela. The data and the materiality of the domestic space have been used to infer the organisation of the mode of work, population estimates, the differential quality of the manufacture of tools of production, and their distribution in the several activity areas that constitute the domestic space (Sanoja and Vargas 1995). Furthermore, a great deal of work has been carried out in the form of theses from the Universidad Central de Venezuela (Alvarado 1992; Bencomo 1993; Colmenárez 1989; Ferrer 1987; Hertelendy 1984; Larotonda 1986; Montilla and Prada 1987; Navarrete 1990a; Vivas 1998). Such theses have tried to define not only the collective aspects of daily life, but also the way individuals insert themselves in these vital processes, as well as the political aspects of archaeological practice.

The above statements are also aimed at elaborating the empirical referents which arise from the experience of archaeology, in order to use such material as a basis for analogical comparison. Without neglecting the valuable contribution represented by the experiences of contemporary societies, we believe it

is possible and necessary to try to approach the logic of daily life in ancient societies from the analysis of archaeological evidence in domestic spaces. Furthermore, Meillassoux (1982), Sahlins (1972), Heller (1985), Veloz Maggiolo, (1988), Lúkacs (1969), and Lefebvre (1994) have theorised on the system of signification within particular groups. The work of these authors constitutes an important resource for the development of the methodology of an archaeology of daily life.

As stated above, daily (quotidian) life and domestic space are concepts that permit the understanding of the materialisation of the major events that make up the historical processes of a given society, and allow access to its more specific empirical manifestations. Both concepts have a historical character and represent the essence of a socio-economic formation and its mode of production, as well as the multiplicity of cultural forms and traditions embraced by the mode of life and mode of work. The exploration of their potential for the archaeological study of society has been hampered by the scarcity of resources in our universities, as it is obvious that greater resources are necessary for theorisation and experimentation in techniques and methods for field and laboratory research.

URBAN ARCHAEOLOGY: THE STUDY OF THE COLONIAL MODE OF LIFE

Recently, some Latin American social archaeologists have begun to study in depth the post-Conquista social formations (Sanoja *et al.* 1998; Vargas 1995; Vargas *et al.* 1998; Vargas Arenas and Vivas 1998; Veloz Maggiolo and Ortega 1992; Vivas 1998). The analyses have concentrated on the origins of the development of capitalism, particularly the appearance of urban life as a result of the process of colonisation.

Urban life in most countries in Latin America developed as a consequence of the conquest by the Castilians or Iberians of the land formerly owned by the American indigenous population. The initial spatial ordering of capitalism generated contradictions as well as deep transformations of the previous social life, not only of the vanquished Indian populations, but of the Europeans and Africans as well. The fundamental characteristics of that process are the ones that refer to changes in the social relations of production implicit in the capitalist order. These new relations led to an uninterrupted process of transformations that manifested themselves in different ways. One of those manifestations is the multiplicity of social spaces coupled with multiple spatial forms. The main social space is the city. Inside it and around it multiple spatial forms burgeon, related to production processes as well as to political, social and ideological manifestations (Vargas 1995, 1996).

The roots of our national states and the characteristics of our colonial modes of life are in the transitional period between the sixteenth and nineteenth centuries. The colonial states represented the concrete, particular manifestation of the metropolitan state. The *Derecho Indiano* was the basis of the legal structure of the colonies, but the different oligarchies interpreted and, in some way, developed customary procedures that were the rule in private or public daily life. The colonial modes of life persisted well into the nineteenth century, although the republican political system constituted the formal framework of the social processes. Urban archaeology gives us an inside view into the materiality of all these processes. We can apprehend their form through the written sources, but archaeology reveals for us their contents.

The interest for social archaeology in urban archaeology lies in the scientific and political importance of studying the materiality of the colonial state, the different colonial modes of life, the development of social inequality and the production of social spaces as a complex and particular manifestation of world capitalism. These processes occur at a moment when the political strategy of the ruling national and transnational oligarchies effaced or confused the national, regional or local historical identities of our societies. Recent research by Gándara (1997) presents a comparative critical analysis of theories on the origin of the state.

We cannot say if this is an overall trend among Latin American social archaeologists in Latin America, since most of the archaeological research on colonial sites seems so far to be oriented toward the construction of cultural chronologies based on *majolica* or *criollo* wares. The foundations of our urban archeology started in 1976 with the partial excavation and study of the old city of Santo Tome de Guayana (Sanoja 1978), where excavations are still under way, and later with the partial excavation and documentary study of the Catalonian Capucin missions and iron forges located around the city as well as the geophysical survey of both the Forja Catalana and the northwestern area of Santo Tome de Guayana site (Sanoja 1994a). In Caracas, the activities of the project of urban archaeology have been associated with the restoration programme of several historical monuments, allowing a broad theoretical interpretation of the colonial way of life and the impact of the second industrial revolution on the population of Caracas, supported also in many cases with documentary research (Aburto 1994; Bencomo 1993; Sanoja 1994a, 1994b; Sanoja and Vargas 1994; Sanoja *et al.* 1998; Vargas 1994, 1998; Vargas Arenas and Vivas 1998; Vargas Arenas *et al.* 1998). In the Dominican Republic, studies in urban archeology have permitted the analysis of the creation of social spaces in the city of Santo Domingo (Veloz Maggiolo and Ortega 1992), starting with the original foundation of the Villa de Santo Domingo in 1498.

SOCIAL ARCHAEOLOGY IN LATIN AMERICA: THE PLANNING OF RESEARCH

Social archaeology in Latin America approaches the study of history in its totality. The notion of 'totality' assumes a relative, but concrete, character (Kosik 1967; Schaff 1974), which is in opposition to particularistic, relativist or absolutist conceptions of the meaning of totality (Steward 1973). As seen through the lens of social archaeology, a research programme cannot be completed merely by carrying out isolated excavations aimed at clarifying isolated problems, as has generally been the case in Latin America with the aim of establishing chronological sequences of artifacts. On the contrary, within social archaeology the minimal logical unit on which to base a research programme is considered to be the 'historical region' (Navarrete 1990b; Vargas 1990). In previous work (Sanoja 1988) we have shown that a set of domestic spaces and their corresponding territorial area inserted in a given regional space may be synchronic with modes of work and types of social relationships, thus being likely to be defined as a territorial group. In other work (Vargas 1985) we considered this definition to refer to the processes involved in the successive utilisation of a common area by groups that may or may not be historically related. Such a definition allows us to understand how a particular geographical region has been humanised throughout history, how each historical element contributed to the continuity of subsequent elements, and how the different domestic and territorial groups designed and implemented in that space the modes of life that characterise every socio-economic formation.

A regional programme of archaeological research conceived in relation to the time, space and development that define a historical region would permit an exploration of the creation of 'archaic nationalities' (Bauer 1979). For example, the Spanish colonial regime in Venezuela created a territorial juridical and political structure of seven provinces whose borders corresponded in a general way to the former regions which were the result of 15,000 years of ancient history (Vargas Arenas and Sanoja 1993:92–4). If archaeology reflects real history, if its final objective is to demonstrate the continuity of the processes of identification from which nations materialise, then the process of data generation should be organised around the concept of historical regions. Such a process implies designing research programmes that allow for the analysis of the particular expressions of socio-economic formations in every region via their related modes of life. However, the scope of social archaeology transcends the sixteenth century, since it has also to

render accounts of the particularities of the insertion of pre-capitalist formations into capitalist formations, and the structuration of class society in the different historical regions of the national territory. At this level of analysis social archaeology conforms to a theoretical-methodological unit which includes documentary history, social anthropology, human and historical geography, architecture, literature and the social sciences, which all co-operate to interpret the complexity of the archaeological data generated from the study of capitalist class society. The aim of social archaeology in Latin America is to analyse scientifically the dynamics of the pre-capitalist societies as a historical process which is theoretically and methodologically related to the emergence of class society after the sixteenth century. To fulfil this objective it is necessary to establish a division of work among archaeologists and other social scientists in order to comprehend the particular social characteristics assumed by the object of study in its historical development, whilst maintaining the thematised units of its concrete manifestations. As such, the final objective of archaeological research should be to expose the materiality and the subjectivity of the multiple processes of transformation of society as multidetermined concrete realities; to proceed from social theory, from the major events of history, to the irreducible expressions of quotidian life whose complexity may be recreated and exposed via concrete research. The results of such research should be contrasted with the progressively less particular expressions of human activity: domestic groups, territorial groups, processes and modes of work, modes of life, historical regions, modes of production, and social formations.

To distinguish the particular manifestations of Latin American social archaeology does not mean to assume the posture of scientific relativism. The fundamental aim of social archaeology is the critical study of history as a dialectical process, considering the past as that which determines the present and, conversely, the present as the source of the manipulation of the past. Our proposed approach calls for the rejection of empiricism, of the particularism of the positivist and neo-positivist approaches, as well as the extreme objectivism of the empiricists and the dogmatic Marxists. We assert that archaeology, like the other sciences, is not politically neutral but, on the contrary, is a way of doing politics by other means (Díaz Polanco 1988:71), and is an expression of the political discourse assumed by hegemonic historical blocks in various countries and epochs (Patterson 1986:29–46, 1990). Social archaeology, being socially produced, has a political praxis determined by the national and regional contexts in which it develops.

In the case of Latin America, and the Caribbean region in particular, the main objectives of social archaeologists are to revitalise the study of real history, and therefore to clarify the historical consciousness; to foster the processes of identification that were initiated in pre-classist societies; and to develop forms of communication via formal and open education in order to generate in the mass of the population a positive feeling of adhesion toward the values and processes of identification that arise from an understanding of history In Venezuela the process of formal education has never de-contextualised the teaching of physics, chemistry, mathematics or biology, but does de-contextualise and deform the teaching of the social sciences, in particular history and national history. Such a programme of education corresponds to the political objectives of the hegemonic blocks of power in Latin America, to support the political project of the international financial powers to de-nationalise the Latin American countries in order to place them more easily within a transnational project of government. Latin American social archaeology, like other disciplines in the social sciences, has to challenge such attempts to dismantle and dissolve the history of our peoples. The intellectuals of positivist history, those who have always denied the validity of indigenous societies and the achievements of popular culture in the formation of national society, were quick to claim that history ceased to exist after the collapse of the Stalinist model of socialism. They further claim that world society is already realised in the present capitalist world order, in a similar way to certain Marxist theoreticians, who considered communism to be the last stage of history and the end of dialectics (Lefebvre 1959).

To prevail in the face of the dismantling of the history of our people requires a new archaeological epistemology and a new discourse. Positivist and neo-positivist archaeology utilises a demonstrative logic, based on an impeccable scientific description of the data—every conclusion is geared towards reaffirming the truth of the empirical world. As such, the archaeologist is merely the intermediary who facilitates the communication of the truth between the empirical world of the past and present society. For the social archaeologists the empirical data must be already organised in the field into contexts of quotidian life. Therefore, the archaeologist should perform successive readings of the different living floors in order to understand the composition and nature of the different kinds of contexts of activity that bear witness to human labour. Consequently, the diverse archaeological material can be analysed in the laboratory as the objectification of concrete work processes, and not merely as de-contextualised and discrete elements included in typologies and classes of artifacts. Through theorisation, the contexts of raw data become contexts of constructed data that permit us to outline the mode of work of a human community, as well as to infer the representations that individuals adopt at a conscious level. The regional analysis of the diverse contexts of quotidian life within their time-space relationship lead us to analyse and theorise on the diversity of rhythms that distinguish a mode of life, or a historical region, and determine its position within the dialectical movement of a socio-economic formation. Data are the letters that form the words, the words are assembled and give meaning to the text that represents a concrete reality.

A presentation of this type demands a great deal of investment in theoretical-practical work compared with the instrumentalism of positivist and neo-positivist archaeology, where this type of theorising might be dispensed with and only certain fieldwork and laboratory routines for the description and formal-functional analysis of the data are deemed necessary The instrumental handling of data does not require any kind of social compromise on the part of the archaeologist other than the quest for a certain level of credibility among her or his own scientific community. Social archaeologists, on the contrary, must look for a level of credibility and viability, not only in the implementation of a social archaeology, but also in the diffusion of their ideas that should, accordingly, reach wider circles in their national community. That community includes social scientists, elementary, high school and university teachers, and the general public that may have access to ideas via books, journals, newspapers, television, and displays at museums and archaeological parks.

The above concepts help to define the professional profile of a social archaeologist, geared towards developing a necessary division of work in order to cope with the wide array of activities required to generate and analyse the primary data, and in order to convert that data into texts to be diffused and interpreted for the public. Such a definition of a professional profile indicates that not all archaeologists have to be field and laboratory workers. They may also be assigned to investigate the process by which data are diffused and interpreted in the educational system, via literature, museums, audiovisual means, printed media, the teaching of history and cultural promotion. A single archaeologist might be able to perform many of these activities on their own; a social archaeologist dedicated to the diffusion of knowledge and to education should also be able to theorise on the social reality being diffused and taught.

REFERENCES

Aburto, L. (1994) 'La presencia de la porcelana inglesa del siglo XIX en el registro arqueológico caraqueño', unpublished undergraduate dissertation, Escuela de Antropología, Universidad Central de Venezuela, Caracas.

Alvarado, G. (1992) 'Arqueología y conservación del patrimonio histórico. Teología de una praxis', unpublished undergraduate dissertation, Escuela de Antropología, Universidad Central de Venezuela, Caracas.

Alvarez, M. and Fiore, D. (1993) 'La arqueología como ciencia social: apuntes para un enfoque teóricometodológico', *Boletín de Antropología Americana* 27:21–38.

Bartra, R. (1975) *Marxismo y Sociedades Antiguas,* Mexico: Editorial Grijalbo.

Bate, L.F. (1977) *Arqueología y Materialismo Histórico,* Mexico: Ediciones Cultura Popular.

—— (1978) *Sociedad, Formación Social y Cultura,* Mexico: Ediciones Cultura Popular.

—— (1984) *Cultura, Clases y Cuestión Etnico Nacional,* Mexico: Colección Principios.

—— (1989) 'Notes on historical materialism and its role within the research process in archaeology', paper presented at the symposium *Critical Approaches in Archaeology: Material Life, Meaning, and Power,* organised by the Wenner-Gren Foundation, Cascais.

—— (1998) *El Proceso de Investigación en Arqueología,* Barcelona: Crítica.

Bate, L.F., Sanoja, M., Díaz, H., Lumbreras, L., Veloz, M. and Vargas, I. (1983) 'Documentos para el estudio de las formaciones autóctonas Americanas. Documento Oaxtepec I', unpublished manuscript.

—— (1984) 'Documentos para el estudio de las formaciones autóctonas Americanas. Documento El Cusco', unpublished manuscript.

—— (1985) 'Documentos para el estudio de las formaciones autóctonas Americanas. Documento de Caracas', unpublished manuscript.

Bauer, O. (1979) *La Cuestión de las Nacionalidades y la Social Democracia,* Mexico: Biblioteca del Pensamiento Socialista.

Bencomo, C. (1993) 'Clases sociales en la colonia', unpublished undergraduate dissertation, Escuela de Antropología, Universidad Central de Venezuela, Caracas.

Binford, L. (1968) 'Archaeology as anthropology', in L.Binford and S.Binford (eds) *New Perspectives in Archaeology,* Chicago: Aldine. 20–32.

Binford, L. and Binford, S. (1968) 'Archaeological perspectives', in L.Binford and S.Binford (eds) *New Perspectives in Archaeology,* Chicago: Aldine. 78–100.

Boschin, M.T. (1993) 'Arqueología: categorías, conceptos y unidades de análisis', *Boletín de Antropología Americana* 24:79–109.

Castro, P. (1996) 'Teoría de las prácticas sociales', *Complutum Extra* 6, 2:35–48.

—— (in press) 'Teoría de la producción de la vida social. Un análisis de los mecanismos de explotación en el sudeste peninsular (*c*. 3000–1500 cal ANE)', in F.Nocete and O.Arteaga (eds) *Actas del Primer Congreso de Arqueología Social, La Rábida.*

Colmenárez, L. (1989) 'Arqueología, herencia cultural y educación', unpublished undergraduate dissertation, Escuela de Antropología, Universidad Central de Venezuela, Caracas.

Delgado, L. (1989) *Seis Ensayos Sobre Estética Prehispánica en Venezuela,* Caracas: Academia Nacional de la Historia (Colección Estudios, Monografías y Ensayos 120).

Díaz Polanco, H. (1988) 'Cultura y política en el pensamiento de Gramsci', *Boletín de Antropología Americana* 7: 63–84.

Estévez, J. and Vila, A. (eds) (1995) *Encuentros en los Conchales Fueguinos,* Barcelona: Departamento de Antropología Social y Prehistoria y CSIC (Treballs d'etnoarqueologia 1).

Ferrer, J. (1987) 'Antiguas sociedades recolectoras del oriente de Venezuela: consideraciones teóricas sobre la relación del ecosistema de Manglar y el modo de vida recolector múltiple litoral', unpublished undergraduate dissertation, Escuela de Antropología, Universidad Central de Venezuela, Caracas.

Flannery, K. (ed.) (1976) *The Early Mesoamerican Village,* New York: Academic Press.

Fonseca, O. (ed.) (1988) *Hacia una Arqueología Social. Actas del Primer Simposio de la Fundación de Arqueología del Caribe,* San José: Universidad de Costa Rica.

Fournier, P. (1992) 'Lo social y lo material en arqueología: algunos conceptos y correlatos relevantes', *Boletín de Antropología Americana* 26:25–31.

—— (1995) 'Etnoarqueología cerámica otomí: maguey, pulque y alfarería entre los hñahñú del valle del Mezquital', unpublished doctoral dissertation, Facultad de Filosofía y Letras, Universidad Nacional de Mexico.

Gándara, M. (1987) 'Hacia una teoría de la observación en arqueología', *Boletín de Antropología Americana.* 15:5–13.

—— (1992) ‘El análisis de posiciones teóricas: aplicaciones a la arqueología social’, *Boletín de Antropología Americana* 93–104.
—— (1993) ‘El análisis de posiciones teóricas: aplicaciones a la arqueología social’, *Boletín de Antropología Americana* 27:5–20.
—— (1994) ‘Consecuencias metodológicas de la adopción de una ontología de la cultura: una perspectiva desde la arqueología’, in J.González (ed.) *Metodología y Cultura,* Mexico: Colección Pensar la Cultura, CONACULTA. 67–118.
—— (1997) ‘El criterio de “fertilidad teórica” y su aplicación a las teorías sobre el Estado’, *Cuicuilco* 4: 19–34.
Gándara, M., López, F. and Rodríguez, I. (1985) ‘Arqueología y Marxismo en Mexico’, *Boletín de Antropología Americana* 11:5–18.
Heller, A. (1985) *Historia y Vida Cotidiana. Aportes a la Sociología Socialista,* Mexico: Colección Enlace Grijalbo.
Hertelendy, I. (1984) ‘Investigación arqueológica en el Valle de Quíbor. Ojo de Agua: un sitio de habitación prehispánico de la Fase Guadalupe’, unpublished undergraduate dissertation, Escuela de Antropología, Universidad Central de Venezuela, Caracas.
Kosik, K. (1967). *Dialéctica de lo Concreto,* Mexico: Editorial Grijalbo.
Larotonda, R. (1986) ‘El sitio Botiquín. Investigaciones arqueológicas en un sitio de habitación de la fase Guadalupe. Quíbor, Edo. Lara, Venezuela’, unpublished undergraduate dissertation, Escuela de Antropología, Universidad Central de Venezuela, Caracas.
Lazcano, C. (1993) ‘Identificación arqueológica de un modo de vida: un estudio en Xochimilco’, *Boletín de Antropología Americana* 28:133–61.
—— (1995) ‘Modo de vida en las unidades habitacionales de Xochimilco durante el Postclásico Tardío’, unpublished undergraduate dissertation in archaeology, Escuela Nacional de Historia, Mexico.
Lefebvre, H. (1959) *La Somme et la Reste,* Paris: La Nef de Paris.
—— (1994) *The Production of Space,* London: Blackwell.
López Aguilar, F. (1984) ‘Superficies y volúmenes: aspectos de la construcción teórica en arqueología’, *Boletín de Antropología Americana* 10:23–34.
—— (1990) *Elementos para una Construcción Teórica en Arqueología,* Mexico: INAH (Colección Científica Serie Arqueología).
López, F. Fournier, P. and Paz, C. (1988) ‘Contextos arqueológicos y contextos momento. El caso de la alfarería Otomí del Valle de Mezquital’, *Boletín de Antropología Americana* 17:99–132.
Lorenzo, J. (ed.) (1976) *Hacia una Arqueología Social. Reunion de Teotihuacán (Octubre de 1975),* Mexico: INAH.
Lúkacs, G. (1969) *Historia y Conciencia de Clase,* Mexico: Editorial Grijalbo.
Lumbreras, L. (1974) *La Arqueología como Ciencia Social,* Lima: Ediciones Histar.
—— (1981) *La Arqueología como Ciencia Social,* Lima: Ediciones PEISA (second edition).
MacNairm, B. (1980) *The Method and Theory of V.Gordon Childe,* Edinburgh: Edinburgh University Press.
Marx, C. and Engels, F. (1982). *La Ideología Alemana,* La Habana: Editorial del Pueblo y Educación.
Meillassoux, C. (1982) *Mujeres, Graneros y Capitales,* Mexico: Editorial Siglo XXI (fifth edition).
Montané, J. (1980a) *Marxismo y Arqueología,* Mexico: Ediciones Cultura Popular.
—— (1980b) *Fundamentos para una Teoría Arqueológica,* Mexico: Centro Regional Del Noreste, INAH.
Montilla, M. and Prada, O. (1987) ‘Tecnología cerámica en un modo de vida mixto de la Costa de Paria’, unpublished undergraduate dissertation, Escuela de Antropología, Universidad Central de Venezuela, Caracas.
Navarrete, R. (1990a) ‘Nosotros y los otros. Aproximación teórico metodológica al estudio de la expresión de la etnicidad en la cerámica de las sociedades Barrancoide y Ronquinoide en el Bajo y Medio Orinoco. (600 a.C.–300 d.C.)’, unpublished undergraduate dissertation, Escuela de Antropología, Universidad Central de Venezuela, Caracas.
—— (1990b) ‘El concepto de region histórica y su aplicación al estudio de los procesos socio-históricos y etnicos prehispánicos. (Oriente de Venezuela)’, paper presented at the *Séptimo Coloquio Nacional de Historia Regional y Local,* Carápano.

Patterson, T. (1986) 'Algunas tendencias teóricas de postguerra en la arqueología norteamericana', *'Gens', Boletín de la Sociedad Venezolana de Arqueólogos* 2–4:29–44.
Pérez, J.A. (1981) *Presencia de Vere Gordon Childe,* Mexico: INAH.
Sahlins, M. (1972) *Stone Age Economics,* Chicago: Aldine.
Sanoja, M. (1978) 'Proyecto Orinoco: excavación en el sitio arqueológico de Los Castillos de Guayana, Territorio Federal Delta Amacuro, Venezuela', *Actas del Séptimo Congreso Internacional para el Estudio de las Culturas Precolombinas de las Antillas Menores,* Universidad Central, Caracas, Venezuela, y Centre de Recherches Caraibes, Université de Montreal, Canada. 157–68.
—— (1988) 'La inferencia en la arqueología social', in O.Fonseca (ed.) *Hacia una Arqueología Social. Actas del Primer Simposio de la Fundación de Arqueología del Caribe,* San José: Universidad de Costa Rica. 132–44.
—— (1994a) 'Report on the archeological research at the sites of La Forja Catalana, Mision de La Purisima and Santo Tome de Guayana, Bolivar State, Venezuela', unpublished manuscript (grant 4559–91), National Geographical Society Library.
—— (1994b) 'The Guayana project. In situ museums and education', in *Archaeological Remains. In Situ Preservation. Actas del Segundo Coloquio Internacional del ICAHM,* Montreal. 129–34.
Sanoja, M. (ed.) (1987) *Relaciones Hombre Naturaleza. Actas del Tercer Simposio de la Fundación de Arqueología del Caribe,* Washington DC: Taraxacum.
Sanoja, M. and Vargas, I. (1974) *Antiguas Formaciones y Modos de Producción Venezolanos,* Caracas: Monte Avila Editores.
—— (1978) *Antiguas Formaciones y Modos de Producción Venezolanos,* Caracas: Monte Avila Editores (second edition).
—— (1990) 'Perspectivas de la antropología en Venezuela: el caso particular de la arqueología', '*Gens', Boletín de la Sociedad Venezolana de Arqueólogos* 4, 1:23–64.
—— (1992) *Antiguas Formaciones y Modos de Producción Venezolanos,* Caracas: Monte Avila Editores (third edition).
—— (1994) 'Tendencias del proceso urbano en las Provincias de Caracas y Guayana, siglos XVI–XIX: el modo de vida colonial Venezolano', *Boletín de la Academia Nacional de la Historia, Caracas* 77, 305: 208–25.
—— (1995) *Gente de la Canoa. Antiguos Modos de Vida Apropiadores del Noreste de Venezuela 6.00 a.P.–1991 d.C,* Caracas: Editorial Tropykos.
Sanoja, M., Vargas Arenas, I., Montilla, M. and Alvarado, G. (1998) *Arqueología de Caracas I: Excavaciones en la Escuela de Música José Angel Lamas,* Caracas: Biblioteca de la Academia Nacional de la Historia de Venezuela (Serie Estudios, Monografías y Ensayos 177).
Sarmiento, G. (1987) 'Las sociedades cacicales. Propuesta teórica e indicadores arqueológicos', unpublished undergraduate dissertation, Escuela de Antropología e Historia, Mexico.
—— (1992) *Las Primeras Sociedades Jerárquicas,* Mexico: INAH (Collección Científica 246).
—— (1993) 'Tribus y cacicazgos: una discusión acerca del origen de la estratificación social', *Boletín de Antropología Americana* 27:95–108.
—— (1997) 'La jerarquía social desde la perspectiva de la arqueología social', *Cuicuilco* 4:35–49.
Schaff, A. (1974) *Historia y Verdad,* Mexico: Editorial Grijalbo.
Steward, J. (1973) *Theory of Culture Change,* Chicago: University of Illinois Press.
Terrazas, A. (1992) 'Bases para la elaboración de una teoría paleoantropológica', *Boletín de Antropología Americana* 25:5–18.
—— (1993) 'Teorías de la complejidad, hibridación y el estudio de la evolución humana', *Boletín de Antropología Americana* 27:109–23.
—— (1994) 'El pensamiento evolucionista de Federico Engels. A cien años de su muerte', *Boletín de Antropología Americana* 29:89–103.
—— (1997) 'Metaevolución y organización biosocial', *Cuicuilco* 4:9–18.
Tiesler, V. (1994) 'Algunos conceptos y correlaciones para la consideración del individuo en arqueología', *Boletín de Antropología Americana* 29:5–16.
Trigger, B. (1980) *Gordon Childe. Revolutions in Archeology,* New York: Columbia University Press.

Vargas, I. (1985) 'Arqueología de la Zona Sur del Lago de Maracaibo', *'Gens', Boletín de la Sociedad Venezolana de Arqueólogos* 1, 1:5–37.

—— (1988) 'Definición de conceptos para una arqueología social', in O.Fonseca (ed.) *Hacia una Arqueología Social. Actas del Primer Simposio de la Fundación de Arqueología del Caribe,* San José: Universidad de Costa Rica.

—— (1989) 'Teoría sobre el cacicazgo como Modo de Vida: el caso del Caribe', paper presented at the symposium *Critical Approaches in Archaeology: Material Life, Meaning, and Power,* organised by the Wenner-Gren Foundation, Cascais.

—— (1990) *Arqueología, Ciencia y Sociedad,* Caracas: Editorial Abre Brecha.

—— (1994) 'Project of urban archaeology in the city of Caracas', in *Archaeological Remains. In Situ Preservation. Actas del Segundo Coloquio Internacional del ICAHM,* Montreal. 271–6.

—— (1995) 'La arqueología urbana. Paradigma para la creación de una historia alternativa de la ciudad de Caracas', *Tierra Firme. Revista de Historia y Ciencias Sociales* 51, 33:315–37.

—— (1996) 'La arqueología social: un paradigma alternativo al angloamericano', *El Caribe Arqueológico* 1: 3–7.

—— (1998) *La Historia como Futuro,* Caracas: Editorial Tropykos.

Vargas, I. (ed.) (1985–92) *'Gens, Boletín de la Sociedad Venezolana de Arqueólogos,* Caracas: Ediciones SOVAR.

Vargas Arenas, I. and Sanoja, M. (1993) *Historia, Identidad y Poder,* Caracas: Editorial Tropykos.

Vargas Arenas, I. and Vivas, V. (1998) 'Caracas: espacio social y vida cotidiana en la transición entre un modo de vida colonial y uno nacional', paper presented at the 5to. Congreso de Historia Regional y Local, Venezuela.

Vargas Arenas, I., Sanoja, M., Montilla, M. and Alvarado, G. (1998) *Arqueología de Caracas II: Arqueología de San Pablo. Sitio Arqueológico Teatro Municipal,* Caracas: Biblioteca de la Academia Nacional de la Historia de Venezuela (Serie Estudios, Monografías y Ensayos 178).

Veloz Maggiolo, M. (1976) *Medioambiente y Adaptación Humana en la Prehistoria de Santo Domingo,* two volumes, Santo Domingo: Ediciones de la UASD.

—— (1988) 'Arqueología de la vida cotidiana', in O.Fonseca (ed.) *Hacia una Arqueología Social. Actas del Primer Simposio de la Fundación de Arqueología del Caribe,* San José: Universidad de Costa Rica. 109–31.

Veloz Maggiolo, M. and Ortega, E. (1992) *La Fundación de la Villa de Santo Domingo,* Santo Domingo: Comisión Dominicana Permanente para la Celebración del Quinto Centenario del Descubrimiento y Evangelización de America (Serie Historia de la Ciudad 1. Colección Quinto Centenario).

Vila, A. and Argelés, T. (1993) 'Acerca de la contradicción o de la diferencia a la explotación', *Revista L'Avenc* 169: 12–16.

Vivas, V. (1998) 'La producción del espacio social en la cuadra San Jacinto', unpublished undergraduate dissertation, Escuela de Antropología, Universidad Central de Venezuela, Caracas.

Chapter Five
The archaeology of hunter-gatherers in South America
Recent history and new directions

José Luis Lanata and Luis Alberto Borrero

There is no detailed history of the archaeology of South America, only incomplete sketches or partial treatments within global histories (i.e. Willey and Sabloff 1984; Trigger 1989), or highly specific national regional histories (e.g. Fernández 1982; Fernández Distel 1985; Ortiz-Troncoso 1991; Boschin 1991; Van der Hammen and Ortiz-Troncoso 1992; López and Bracco Boksar 1994; Funari 1995; Politis 1995). This chapter focuses on the recent history of the archaeology of hunter-gatherers in South America. After a general review of the principal research trends, we examine the case of Fuego-Patagonia in some depth. Finally, by discussing particular properties of the archaeological record, we argue that evolutionary theory provides a useful framework for the study of the archaeology of hunter-gatherers in South America.

CHRONOLOGY AND TYPOLOGICAL THINKING

For many years the archaeology of hunter-gatherers in South America was narrowly focused on chronological issues, especially the antiquity of human settlement (e.g. Cardich 1977). In a general sense this trend was in accordance with developments in other regions of America (Dunnell 1986; Meltzer 1991), the crucial differences being the methodology used and theoretical standpoint adopted.

In South America surface finds were assigned to chronologies using a simplistic cultural evolutionary scheme that correlated time-depth with low investment of energy in the fabrication of lithic artifacts, and a geo-chronological assessment of the presumed antiquity of the sediments in which the artifacts were deposited, a practice that inevitably produced maximum dates. This approach was principally used by archaeologists of the *Kulturkreis* school (e.g. Menghin 1952; Schobinger 1969), or those influenced by its methodology (Ibarra Grasso 1955, 1971; Arellano 1987; Taddei 1987). Other researchers working within paradigms of a very different nature were also tempted by this scheme, in which progressive technological sequences were the expected outcome (e.g. Lanning 1967; Bate 1983). Problems with the approach arose when assemblages which were treated as representing complete repertoires of ancient 'industries' (Lanning 1967) eventually proved to be accumulations of tools broken in the process of manufacturing (usually broken bifaces, Lynch 1974) and, in some cases, were not even artifacts (Nuñez 1983).

Subsequently, the archaeology of hunter-gatherers in South America became the archaeology of successively more 'complex' societies, usually occupying terraces located near rivers (Cruxent and Rouse 1956; Sanguinetti and Schlegel 1972), lakes (Ibarra Grasso 1955; Cigliano 1962; Arellano 1992), or the ocean (Menghin 1952; Bórmida 1964). Site distribution maps were the primary product of these efforts. Only in a few cases, in which stratigraphic data were obtained, were more interesting results produced (Sanguinetti 1976).

In the 1960s the above approach was slowly replaced by the culture-historical research paradigm (see Willey and Phillips 1958). The culture-historical approach produced information more adequate for an

understanding of hunter-gatherer archaeology, with substantial developments in the archaeology of the highlands of Colombia (Correal Urrego 1981), Venezuela (Gassón and Wagner 1992), Ecuador (Bell 1965; Salazar 1974, 1979, 1988; Lynch and Pollock 1980; Mayer-Oakes 1986), Peru (Lynch 1980; Rick 1980; Matos Mendieta 1992), Chile (Ortiz-Troncoso 1975; Massone 1981; Nuñez 1983, 1989; Nuñez and Santoro 1990) and Argentina (Aguerre *et al.* 1973; Orquera 1984–5; Orquera *et al.* 1977; Aschero 1979; Gradin *et al.* 1979). The form that the approach took in Brazil was an official nationwide project, named PRONAPA (Evans 1967; see Funari 1992), that resulted in a profusion of archaeological phases, traditions and sub-traditions (Schmitz 1987; Meggers 1992).

Other approaches to archaeology were practised. For example, research by archaeologists from the French Missions produced important results in South America (Laming-Emperaire 1959, 1972; Lavalleé 1985; Legoupil 1989), using methodologies more in line with their European origin. Thus, the *décapage* techniques made popular by Leroi-Gourhan (Leroi-Gourhan and Brézillion 1972) were recently applied by French archaeologists and gained some South American adherents (e.g. Aschero 1983).

As for mainstream archaeology, a clear concern for a regional approach was evident in some projects, especially in the Andean zone (Lynch 1971; Hurt 1974; Rick 1980; Salazar 1992; Gradin *et al.* 1979), but most of the projects relied on single-site sequences. Such sequences were usually used as normative statements within which data from new excavations were accommodated. Departures from this scheme are mostly of a chronological nature, such as the extension of the time-depth of American hunter-gatherer adaptations to more than 20,000 BP, predicated on a very flimsy material base (MacNeish 1979). In a few cases, a processual interest in both spatial and temporal issues, or a clearly delineated regional approach, was adopted (e.g. Politis 1984; Borrero 1986; Lanata 1987; Stothert 1988; Goñi 1988; Mena 1991b; Wolford 1991; Yacobaccio 1991; Ardila Calderón 1992; Belardi *et al.* 1992; Burger *et al.* 1994).

By the end of the 1970s research was becoming more focused on regional adaptations. An awareness of the variations inherent in the archaeological record of hunter-gatherers was the most important result of such a focus (i.e. Politis *et al.* 1990; Dillehay *et al.* 1992). A further result was the pursuit of stratigraphic evidence in order to establish chronologies (Politis 1984, 1988; Massone 1987; Nami 1987; Gnecco Valencia *et al.* 1989; Jaimes 1990). Emphasis on chronological issues continued, and the antiquity of the peopling of America constituted the most hotly debated issue of the 1970s and 1980s (Bryan 1973, 1986; Lynch 1990, 1991; Dillehay and Collins 1991). The debate was useful in that it invalidated chronologies based on inadequate data, but the empirical benefits were few.

The development of archaeological theory was slow in South America, with most of the practitioners in archaeology relying at best on schemes developed elsewhere (Politis 1992a). The small number of practitioners, with a poorly developed system of interaction, was, and is, a crucial factor in the lack of work in the area. What is defended by some as a Latin American theoretical development, the *arqueología social latinoamericana* (Latin American social archaeology) (Lumbreras 1974, 1977; Bate 1977; Sanoja 1982; Vargas Arenas 1986, Vargas Arenas and Sanoja in this volume), appears to be an application of Gordon Childe's ideas, or a variety of Marxist-oriented research specifically focused on South America (see Tartusi and Nuñez Regueiro 1993). The approach, which was at least partially a reaction to the empirical approaches of North American archaeologists (Bate 1982, 1983; Fonseca Zamora 1986), relies mainly on a typological approach which does not depart from the type of research they criticise:

> The new conceptual framework derived from historical materialism has allowed American pre-capitalist socio-economic formations to be placed in the following historical sequence: 1. Hunter-gatherer formations, also known as appropriators *[apropiadores]*…2. Tribal formations, also known as producers *[productoras]*…3. Early class formations.

(Vargas Arenas and Sanoja Obediente 1992:36).

The language is different but, as far as hunter-gatherers are concerned, the result is a purely theoretical stance which is difficult to reconcile with the archaeological record. Archaeological interpretation by such researchers is, in addition, more in line with a *Kulturkreis* mode of research than with anything else (see Bate 1983; Vargas Arenas and Sanoja Obediente 1992).

This approach was defended as the first post-processual school by Gándara (see Politis 1992a), in our opinion a description that is not in accordance with the facts. The Latin American social archaeologists' critique of New Archaeology (e.g. Gándara 1981) was not accompanied by fresh methodologies. However, there is one point of contact between both perspectives, in that their main objects of study are complex societies (e.g. Lumbreras 1977; Hodder 1987). Developments in relation to hunter-gatherer adaptations in South America were kept to a minimum, as Ardila Calderón (1992) has noted.

Recently, hunter-gatherer archaeologists working in South America have moved to more specific perspectives, including bioarchaeology (Benfer 1990; Guichón 1994; Arriaza 1995), raw material exploitation (Nami 1993–4; Burger *et al.* 1994; Gnecco Valencia 1994; Franco 1994; Ratto 1994; Scheinsohn and Ferretti 1995), early food production stages (Olivera 1988; Göbel 1994; Pozorski and Pozorski 1995), faunal exploitation (Lanata and Winograd 1988; Simonetti and Cornejo 1991; Jerandino *et al.* 1992; Grupo de Zooarqueología de Camélidos 1994; Reitz 1995), taphonomy (Borrero 1988; Elkin and Zanchetta 1991; Elkin 1995), site formation processes (Lanata 1991; Borrero 1993a), ethnoarchaeology (Borrero and Yacobaccio 1989; Politis 1992b and 1996; Jones 1993; Politis and Rodríguez 1994; see also references cited below), and even wide-scale regional comparison (Johnson and Politis 1993). The existence of these trends does not mean that chronological and typological thinking has been abandoned; it is still strong, and is even combined with other positions (e.g. Piana *et al.* 1992). However, a more theoretical and/or methodological trend is evident (see Mena 1991a; Yacobaccio 1994; Cooke 1995), in which the publication of detailed archaeological reports (i.e. Stothert 1988; Dillehay 1989) is an important contribution.

In a broad conceptual sense, an important turning point in South America was the employment of Optimal Foraging Theory. This framework had been applied exclusively by North American scholars, and only in ethnographic and ethnoarchaeological studies (e.g. Hill and Hawkes 1983; Hames 1990; Chibnik 1990; Kaplan *et al.* 1990; Gragson 1992). Furthermore, evolutionary ecology is an almost absent framework in South American archaeology (for exceptions, see Yacobaccio 1991; Laguens 1994; Lanata and Borrero 1994; Franco and Borrero 1996; Muscio 1996).

ARE CULTURAL SEQUENCES RELEVANT FROM AN EVOLUTIONARY PERSPECTIVE?

As we discussed earlier, chronological questions have dominated research, with other issues secondary in importance. As a consequence, the archaeology of South America is plagued by a plethora of chronological sequences, subdivided into phases, horizons and traditions (Borrero 1989; Ardila Calderón 1992; Lanata 1996). The presumed order created by such subdividing is lost in practice. Constructed typological units are used as if they were empirical entities, which has resulted in chaos. Most of the regional cultural chronologies are the outcome of site-oriented projects. We maintain that site sequences have played a distorting role in the explanation of the evolution of hunter-gatherers. The majority of such sequences resulted from excavations of caves or rock shelters which were not selected on the basis of any systematic

regional sampling programmes. For that reason, subsequent syntheses generally represent research bias rather than the regional archaeological diversity

The concept of evolution directing the formulation of sequences of traditions, cultures and/or adaptative systems is also problematic. In Argentina, as in other American countries, archaeology developed as part of anthropology. Consequently, archaeology's notion of evolution has customarily been derived from Spencerian and Morganian perspectives, while the Darwinian approach has been misunderstood (Dunnell 1980; Rindos 1984). In the Spencerian perspective, evolution implies a notion of progress from simple to complex—a scheme that conceals the subtleties of change and obscures cause. In this scheme, each stage of development presupposes increasing complexity from the previous one. A clear example can be seen in Patagonian archaeology, which has consistently developed the idea of evolution as progress (i.e. Orquera 1984–5, 1987). The idea that for the last 10,000 years of human occupation in the region human populations have changed in the same direction is empirically untenable. Maladaptation and extinction, for instance, are concepts that were bypassed. In fact, extinction has no place within a progressivist view of evolution, and yet extinction is one of the possible outcomes for any biological population.

ARCHAEOLOGISTS ALSO HAVE TO CHANGE: EVOLUTION AS A THEORY FOR ARCHAEOLOGY

When we refer to evolution, we assume that different processes of change across time and space have taken place. Here we will deal with aspects of the processes of dispersal, vicariance, variation, and selection among hunter-gatherers. Our view of human artifacts as components of the human phenotype has already been argued by several authors (e.g. Leonard and Jones 1987; Dunnell 1989; O'Brien and Holland 1992, 1995). We explore ways to analyse change by applying concepts from evolutionary biology and biogeography, which are useful for understanding the complexity of the archaeological record of human evolution.

Archaeology has focused, primarily, upon similarities between artifacts and, more recently, upon differences. Both approaches proceeded by placing artifacts within fixed categories combined with the concept of monophyletic development, which assumes that human evolution consists of a predetermined sequence of steps, envisaged archaeologically by a series of jumps from one artifact type, or set of types, to another. More often than not, the variability within each step is disregarded, under the assumption that the entire population associated with a certain step has changed in the same way and direction. However, as Dunnell has pointed out (1992; see also O'Brien and Holland 1990), the science of archaeology must study variation rather than similarities and/or differences between artifacts or sets of artifacts. In order to do so, a shift in explanatory procedures must take place, as archaeological explanation should be concordant with the properties of the archaeological record.

We consider the transformations, replacements and innovations of human artifacts to be conditioned by macro- and micro-processes such as dispersal, vicariance, or competition, which affect the human populations adopting them. For example, the settlement of the Americas has customarily been seen as a process of gradually advancing waves of immigrants moving from north to south (Dillehay *et al.* 1992; Whitley and Dorn 1993; Meltzer 1995). Such a movement of people has frequently been called 'immigration': the concept of immigration presumes that people move basically in a one-way direction. We prefer to conceive of the settlement of the Americas as a process of dispersion, rather than immigration, which implies that *Homo sapiens sapiens* dispersed throughout America in different directions, times, and conditions (see Borrero 1991b). The idea of dispersion of human beings includes the multiple forms through which the settlement of America has taken place, immigration being only one of the variants. The image of

hunter-gatherers 'marching south' should not allow us to forget that people moved around in different directions, sometimes staying for generations in a given region, avoiding certain places and so forth. The idea of dispersion attempts to grasp the flexibility of human responses to different environmental, social and political conditions.

Another crucial component of the process is that of variation. Populations exploiting different resources through time and space generate diverse types of artifacts. The transformation and disappearance of artifacts, as a component of the human phenotype, records those changes through time. As such, variation refers not only to technological shifts, but also to changes in diet, annual cycles, social relations, and so forth. To a significant extent, the concept of variation is the master-key for understanding evolution. Its specific forms can be neither predicted nor fully listed because variation is non-directional (Rindos 1989a; O'Brien and Holland 1990). A process that is usually invoked as causative of variation is that of decision-making. Introduced into anthropology from evolutionary ecology, decision-making processes rely heavily upon an idea of intentionality that can hardly be traced archaeologically. Furthermore, such processes are thought of as operating at a temporal scale whose resolution cannot be grasped through the archaeological record. We do not deny that decision-making processes did continuously exist, therefore affecting variation. Our point, rather, is that those processes are invisible to archaeologists, who cannot accurately reconstruct the precise conditions influencing past decision-making processes (but see Mithen 1990 for an alternative view). The processes of selection that we can reconstruct archaeologically, on the contrary, are independent of the intended consequences of social action.

However, some broad causes leading to variation can be delineated. The concept of vicariance, for instance, focuses upon divergences in two or more populations with common ancestry, but who are located in regions separated by natural barriers. A case in point is the opening of the Magellan Strait after the process of human dispersion to the southern islands was initiated (Borrero 1989–90). In other cases dispersal may have occurred in spite of the presence of a barrier, such as the Bering Strait populations in Late Pleistocene times, in which genetic flow was apparently not interrupted by the water barrier (Crawford 1992:135–6). In fact, vicariance and dispersal should be seen as complementary models for analysing the dynamics of change in time and space.

SOME DIRECTIONS FOR ARCHAEOLOGICAL CHANGE: LOOKING AT THE PROPERTIES OF THE ARCHAEOLOGICAL RECORD

The archaeological record can be seen as reflecting depositional processes whose integrity and complexity must be assessed on many different levels (Schiffer 1987). We argue that the major properties that allow us to appraise the complexity of the archaeological record are diversity, density, distribution and frequency, and not necessarily in that order. Rindos has pointed out that diversity 'can play a major role in the Darwinian reformulation of the study of culture because of the formal resemblance between the theory and the way in which diversity statistics are constructed' (1989b:21). Historicist perspectives consider diversity of artifacts as a proxy measure of the growing cultural drive towards variability. Functionalist views interpret diversity as adaptation to a changing resource base. Diversity can be seen at two different, but analytically interrelated, levels: temporal and regional. As such, the estimation of how the sample size affects values expressing assemblage relations is critical (Jones *et al.* 1983).

For years archaeologists have analysed artifact distributions by looking at the physical location of particular artifacts in restricted locations, or 'sites' (see Thomas 1975; Foley 1981; Dunnell and Dancey 1983). Including isolated finds in such analyses will permit us to discern the deposition of artifacts related to

macro-processes, such as dispersal or vicariance across the landscape, while avoiding assumptions about site functionality.

The property of density has also been intensively examined by archaeologists, but mostly in order to isolate loci of high artifact concentration. There is no theoretical reason to disregard loci of low density, and within a distributional approach such loci deserve the same treatment as those of high density. The addition of time to density estimates significantly widens the discussion and can be done in varied scales (see Borrero *et al.* 1992; Borrero 1993a; Lanata 1996). If the time-span of deposition is disregarded, then density is not an accurate measure of intensity of use. In biology, the frequency of phenotypic traits is taken as reflecting emergent properties of a population of individuals (see Eldredge 1989). Similarly, the archaeological property of frequency of artifacts, including their frequency in time and space, could be interpreted as the result of selection in favour of particular properties and contra certain alternatives (other kinds of artifacts or attributes) that do not exhibit the property or feature in question. To a certain degree, frequency in time and space interpreted in such a way could allow us to cautiously hypothesise processes of selection. Nonetheless, frequency, or changes in frequency, can only have meaning within a framework that considers large spatial areas and long temporal tracts.

THE CASE OF FUEGO-PATAGONIA

Southern Patagonia and Tierra del Fuego were, until the much more recent settlement of Antarctica, the southernmost regions inhabited by humans—a fact that has attracted the attention of various scholars since the mid-nineteenth century (e.g. Darwin 1859). The first systematic archaeological reports on the region were published in 1899 and 1900 (i.e. Hauthal 1899; Lehmann-Nitsche 1899; Roth 1899; Nordenskiöld 1900). Most of these reports focused on *Cueva del Mylodon,* or Mylodon Cave (Magallanes, Chile), and its surrounding area, due to the remarkable discovery of well-preserved fragments of skin of *Mylodon darwini.* The principal concern, which is still evident in current research (see Saxon 1976; Borrero *et al.* 1991), was to determine the antiquity of the ground sloth remains.

Based on his excavations in Fell and Pali Aike caves in the 1930s, Bird (1938) presented a sequence for the human occupations of Fuego-Patagonia. In the 1950s, Menghin (1952) proposed a different interpretation based upon his results from Los Toldos Cave, adding new units, but without substantially modifying the so-called 'Bird or Fell Sequence'. Either sequence, or a combination of the two, is today the standard reference for the classification of artifacts in southern Patagonia and Tierra del Fuego. However, due to their early formulation, they prompted the organisation of different sets of data into the strait-jacket of predetermined sequences. As such, the units used precluded any explanation of the archaeological record.

In the late 1960s and throughout the 1970s, the number of archaeological investigations increased substantially, as did the amount of scientific literature on Fuego-Patagonia. The main preoccupation was with defining new industries and traditions in order to 'complete' the accepted scheme (see Aschero 1987). During the 1980s, a new generation of archaeologists became sceptical about the use of the established sequences, and elaborated new schemes (Borrero 1989, 1993b; Prieto 1989; Mena 1991a, 1991b; Lanata 1996). Many of the results were obtained through the use of processual approaches that attempted to solve well-defined problems from different perspectives (see Aschero 1983, 1996; Nami 1987; Orquera and Piana 1988; Borrero 1990; Lanata 1991; Mena 1991a, 1991b). A full discussion of the theoretical ramifications of such a paradigm shift transcends the purpose and scope of this essay (for discussion, see Borrero 1989, 1991a; Mena 1991b). It is merely argued here that most of these emerging perspectives cannot completely overcome the constrictions of the inherited schemes. More often than not the adopted approaches confused theoretical innovation with technical advances, or with the use of jargon. As a result, what were previously

known as 'traditions' were updated and renamed 'adaptative systems'. As mentioned earlier, a progressive interpretation of such sequences was still defended by some (Orquera and Piana 1993–4). Obviously, attempting to establish order by multiplying categories hardly improved our chances of rectifying the chaos inherited from traditional classification.

Some examples of the approach we support were developed in southern Patagonia during the last few years. A discussion of archaeological expectations for human populations from different regions in the Santa Cruz Province was derived from evolutionary ecology by Franco and Borrero (1995). A distributional approach was used in order to collect the required lithic and faunal samples. In addition, excavations in selected places contributed temporal samples spanning the last 4,000 radiocarbon years. The analysis permitted the assessment of the importance of changes in the design and frequencies of artifacts and in the guanaco age structure and skeletal parts in the evolution of Patagonian populations. The main results led the authors to suppose that time stress is a key concept in explaining the observed distributions.

Lanata and Ratta (1995) presented the case of the pedestrian hunter-gatherer exploitation of sea lions over the last 1,500 years in the Feugian southeast. By applying a Darwinian perspective in the analysis of both the raw materials from which the weapons were made and the ethology of the pinnepeds, they concluded that a specific tool-kit had not been developed to hunt these mammals. Rather, a small and flexible set of artifacts appears to have been used and lithic arrows designed to withstand the mechanical effort required to hunt sea lions on land.

CONCLUDING REMARKS

We believe that the history and current state of affairs of South American archaeology constitutes the continent as an interesting domain for assessing the potential of evolutionary perspectives for archaeological explanation. Within South America it is necessary to produce regional studies in areas where spatial limits are easy to define, such as the Island of Chiloé, the high paramo in Ecuador, or the Fuegian archipelago. Furthermore, sectors of dry (coastal Peru) or very humid (Amazonia) areas offer potential for the definition of more or less discrete populations. Dunnell (1980, 1992) has consistently argued that evolutionary theory is the most promising approach for archaeology to embrace, and we are as enthusiastic as he in this regard. In addition to the topics outlined in this chapter, we firmly expect that evolutionary archaeology will help us adequately to address other relevant issues, such as those related to processes of convergence and divergence (see Borrero 1989–90), the importance of health and disease in the process of colonisation (see Dillehay 1991), or variations in the human use of restricted spaces (Ardila Calderón 1992; Lanata 1996). Such a path demands that we avoid assumptions about function and human behaviour: the modification of our concept of the properties of the archaeological record is the first step in that direction.

ACKNOWLEDGEMENTS

We thank C.Britt Bousman, Claudia Briones, Robert C.Dunnell, Thomas R.Hester and Gustavo Politis for the comments they made on previous versions of this chapter. The main body of the text was developed at Austin, Texas during May 1993. José Luis Lanata worked with a fellowship of CONICET, Argentina. Research by Luis Alberto Borrero was supported by CONICET and grants from Fundación Antorchas, Argentina.

REFERENCES

Aguerre, A.M., Fernández, A.A. and Aschero, C.A. (1973) 'Hallazgo de un sitio acerámico en la Quebrada de Inca Cueva', *Relaciones* 7:187–235.

Ardila Calderón, G.I. (1992) 'El norte de America del Sur: diversidad y adaptaciones en el final del Pleistoceno', in G.Politis (ed.) *Arqueología en America Latina Hoy,* Bogota: Biblioteca Banco Popular. 90–114.

Arellano, J. (1987) 'Primeras evidencias sobre el Paleoindio en Bolivia', in L.Nuñez and B.Meggers (eds) *Investigaciones Paleoindias al Sur de la Línea Ecuatorial,* Antofagasta: Estudios Atacameños. 186–97.

—— (1992) 'El desarrollo cultural prehispánico en el altiplano y valles interandinos de Bolivia', in B.Meggers (ed.) *Prehistoria Sudamericana. Nuevas Perspectivas,* Mexico: Taraxacum. 309–25.

Arriaza, B.T. (1995) 'Chinchorro bioarchaeology: chronology and mummy seriation', *Latin American Antiquity* 6: 35–55.

Aschero, C.A. (1979) 'Un asentamiento precerámico en la Quebrada de Inca Cueva (Jujuy). Informe preliminar sobre el sitio ICc4', *Actas de las Jornadas de Arqueología del NOA,* Buenos Aires: Universidad del Salvador. 77–95.

—— (1987) 'Tradiciones culturales en la Patagonia Central: una perspectiva arqueológica', *Comunicaciones, Primeras Jornadas de Arqueología de la Patagonia,* Trelew: Dirección de Cultura. 17–26.

—— (1996) 'El area Río Belgrano-Lago Posadas (Santa Cruz): problemas y estado de problemas', in J.Gómez Otero (ed.) *Arqueología. Solo Patagonia,* Pto. Madryn: CENPAT–CONICET. 17–26.

Aschero, C.A. (ed.) (1983) *Arqueología del Chubut: El Valle de Piedra Parada,* Rawson: Dirección de Cultura.

Bate, L.F. (1977) *Arqueología y Materialismo Histórico,* Mexico: Editorial Cultura Popular.

—— (1982) *Orígenes de la Comunidad Primitiva en Patagonia,* Mexico: Ediciones Cuicuilco.

—— (1983) *Comunidades Primitivas de Cazadores-Recolectores en Sudamérica,* Caracas: Fundación Arqueológica del Caribe.

Belardi, J.B., Borrero, L.A., Campán, P, Carballo Marina, F.Franco, N.V., Garcia, M.E, Horwitz, V.D., Lanata, J.L., Martin, F.M., Muñoz, F.E., Muñoz, A.S. and Savanti, F. (1992) 'Intensive archaeological research in the upper Santa Cruz Basin', *Current Anthropology* 33:451–4.

Bell, R. (1965) *Investigaciones Arqueológicas en el Sitio de El Inga, Ecuador,* Quito: Casa de la Cultura Ecuatoriana.

Benfer, R.A. (1990) 'The preceramic period site of Paloma, Peru: bioindications of improving adaptation to sedentism', *Latin American Antiquity* 1:284–318.

Bird, J. (1938) 'Antiquity and migrations of the early inhabitants of Patagonia', *Geographical Review* 28, 2: 270–5.

Bórmida, M. (1964) 'Arqueología de la costa Norpatagónica', *Trabajos de Prehistoria* 14:1–110.

Borrero, L.A. (1986) 'La economía prehistórica de los habitantes del Norte de la Isla Grande de Tierra del Fuego', unpublished doctoral dissertation, Universidad de Buenos Aires.

—— (1988) 'Tafonomía Regional', in N.Ratto and A.Haber (eds) *De Procesos, Contextos y otros Huesos,* Buenos Aires: FFYL–UBA. 9–15.

—— (1989) 'Replanteo de la arqueología patagónica', *Interciencia* 14:127–35.

—— (1989–90) 'Evolución cultural divergente en la Patagonia austral', *Anales del Instituto de la Patagonia* 19: 133–40.

—— (1990) 'Fuego-Patagonian bone assemblages and the problem of communal guanaco hunting', in L. Davis and B.O.K.Reeves (eds) *Hunters of the Recent Past,* London: Unwin Hyman. 373–99.

—— (1991a) 'The impact of the New Archaeology and the subsequent theoretical developments in the study of the hunter-gatherers in Southern South America', paper presented at the 47th International Congress of Americanists, New Orleans.

—— (1991b) 'Spatial heterogeneity in Fuego-Patagonia', in S.Shennan (ed.) *Archaeological Approaches to Cultural Identity,* London: Unwin Hyman. 258–66.

—— (1993a) 'Site formation processes in Patagonia: depositional rates and the properties of the archaeological record', in J.L.Lanata (ed.) *Explotación de Recursos Faunísticos en Sistemas Adaptativos Americanos,* Buenos Aires: Arqueología Contemporánea. 107–21.

—— (1993b) 'Artefactos y evolución', *Palimpsesto* 3:15–32.

Borrero, L.A. and Yacobaccio, H.D. (1989) 'Etnoarqueología de asentamientos Aché', *Journal de la Société des Américanistes* 75:7–33.

Borrero, L.A., Lanata, J.L. and Cárdenas, P. (1991) 'Reestudiando cuevas: nuevas excavaciones en Ultima Esperanza, Magallanes, Chile', *Anales del Instituto de la Patagonia* 20:101–10.

Borrero, L.A., Lanata, J.L. and Ventura, B.N. (1992) 'Distribución de hallazgos aislados en Piedra del Aguila', in L.A.Borrero and J.L.Lanata (eds) *Análisis Espacial en la Arqueología Patagónica,* Buenos Aires: Ediciones Ayllu. 9–20.

Boschin, M.T. (1991) 'Historia de las investigaciones arqueológicas en Pampa y Patagonia', *Runa* 20: 111–44.

Bryan, A.J. (1973) 'Paleoenvironments and cultural diversity in Late Pleistocene South America', *Quaternary Research* 3:237–56

—— (1986) 'Paleoamerican prehistory as seen from South America', in A.L.Bryan (ed.) *New Evidence for the Pleistocene Peopling of the Americas,* Orono: Center for the Study of Early Man. 1–14.

Burger, R.L., Asaro, F.Michel, H.V., Stross, D.H. and Salazar, E. (1994) 'An initial consideration of obsidian procurement and exchange in prehispanic Ecuador', *Latin American Antiquity* 5:228–55.

Cardich, A. (1977) 'Las culturas pleistocénicas y post-pleistocénicas de Los Toldos y un bosquejo de la prehistoria de Sud America', *Obra del Centenario del Museo de La Plata,* tomo II: 149–71, La Plata: Universidad de La Plata.

Chibnik, M. (1990) 'Double-edged risks and uncertainties: choices about rice loans in the Peruvian Amazon', in E.Cashdan (ed.) *Risk and Uncertainty in Tribal and Peasant Economies,* Boulder: Westview Press. 279–302.

Cigliano, E. (1962) 'Industrias precerámicas de la Puna argentina', *Ampurias* 24:1–34.

Cooke, R. (1995) 'The Pleistocene-Holocene transition in Central America, northern South America and the Caribbean', *Abstracts XIV International Congress INQUA,* Berlin. 53.

Correal Urrego, G. (1981) *Evidencias Culturales y Megafauna Pleistocénica en Colombia,* Bogota: Fundación de Investigaciones Arqueológicas Nacionales—Banco de la República.

Crawford, M.H. (1992) *Antropología Biológica de los Indios Americanos,* Madrid: MAFRE.

Cruxent, J.M. and Rouse, I. (1956) 'A lithic industry of Paleoindian type in Venezuela', *American Antiquity* 22:172–9.

Darwin, C. (1859) *The Origin of Species*. Facsimile of the first edition, E.Mayr (ed.) 1964, Cambridge, Mass.: Harvard University Press.

Dillehay, T.D. (1989) *Monte Verde: A Late Pleistocene Settlement in Southern Chile,* vol. 1, *Palaeo-Environmental and Site Context,* Washington DC: Smithsonian Institution.

—— (1991) 'Disease ecology and initial human migration', in T.D.Dillehay and D.J.Meltzer (eds) *The First Americans: Search and Research,* Boca Raton: CRC Press. 231–64.

Dillehay, T.D. and Collins, M. (1991) 'Monte Verde, Chile. A comment on Lynch' *American Antiquity* 56: 333–41.

Dillehay, T.D., Ardila Calderón, G., Politis, G. and Conceiçao de Moraes Coutinho Beltrão, M.da (1992) 'Earliest hunters and gatherers of South America', *Journal of World Prehistory* 6:145–204.

Dunnell, R.C. (1980) 'Evolutionary theory and archaeology', *Advances in Archaeological Method and Theory* 3:35–99.

—— (1986) 'Methodological issues in americanist artifact classification', *Advances in Archaeological Method and Theory* 9:149–207.

—— (1989) 'Aspects of the application of evolutionary theory in archaeology', in C.Lamberg-Karlovsky (ed.) *Archaeological Thought in America,* Cambridge: Cambridge University Press. 35–49.

—— (1992) 'Archaeology and evolutionary science', in L.Wandsnider (ed.) *Quandaries and Quests. Visions of Archaeology's Future,* Carbondale: Center for Archaeological Investigations (Occasional Paper 20). 209–24.

Dunnell, R.C. and Dancey, W.S. (1983) 'The siteless survey: a regional scale data collection strategy', *Advances in Archaeological Method and Theory* 6:267–87.

Eldredge, N. (1989) *Macroevolutionary Dynamics,* New York: McGraw Hill.

Elkin, D.C. (1995) 'Volume density of South American camelid skeletal parts', *International Journal of Osteoarchaeology* 5:29–37.

Elkin, D.C. and J.R.Zanchetta (1991) 'Densitometría ósea de camélidos. Aplicaciones arqueológicas', *Shincal* 3, 1: 195–204.

Evans, C. (1967) 'Programa Nacional de Pesquisas Arqueologicas PRONAPA', Washington DC: CNP/Smithsonian Institution.

Fernández, J. (1982) *Historia de la Arqueología Argentina,* Mendoza: Asociación Cuyana de Antropología.

Fernández Distel, A. (1985) 'Prehistoria', in M. Califano (ed.) *Evolución de las Ciencias en la República Argentina 1872–1972,* tomo 10, Buenos Aires: Sociedad Científica Argentina. 83–104.

Foley, R. (1981) *Off-site Archaeology and Human Adaptation in Eastern Africa. An Analysis of Regional Artefact Density in the Amboseli, Southern Kenya,* Oxford: Cambridge Monographs in African Archaeology 3 (British Archaeological Reports, International Series 97).

Fonseca Zamora, O.M. (1986) 'Reflexiones sobre la arqueología como ciencia social', in O.M.Fonseca Zamora (ed.) *Hacia una Arqueología Social,* Caracas: Fundación de Arqueología del Caribe. 1–9.

Franco, N. (1994) 'Maximización en el aprovechamiento de los recursos líticos. Un caso analizado en el area interserrana bonaerense', in J.L.Lanata and L.A.Borrero (eds) *Arqueología de Cazadores-Recolectores. Límites, Casos y Aperturas,* Buenos Aires: Arqueología Contemporánea. 75–88.

Franco, N. and Borrero, L.A. (1995) 'Bifaces, guanacos and other resources: the evolution of Patagonian populations', paper presented at the 60th Annual Meeting of the Society for American Archaeology, Minneapolis.

—— (1996) 'El stress temporal y los artefactos líticos. La cuenca superior del Río Santa Cruz', in J.Gómez Otero (ed.) *Arqueología. Solo Patagonia,* Pto. Madryn: CENPAT-CONICET. 341–8.

Funari, P.A. (1992) 'La arqueología en Brasil: política y academia en una encrucijada', in G.Politis (ed.) *Arqueología en America Latina Hoy,* Bogota: Biblioteca Banco Popular. 57–69.

—— (1995) 'Mixed features of archaeological theory in Brazil', in P.J.Ucko (ed.) *Theory in Archaeology. A World Perspective,* London: Routledge. 236–50.

Gándara, M. (1981) 'La vieja "Nueva Arqueología" (Segunda Parte)', *Boletín de Antropología Americana* 3: 7–70.

Gassón, R. and Wagner, E. (1992) 'Los otros "vestigios de la Atlántida", o el surgimiento de la arqueología moderna en Venezuela y sus consecuencias', in Y.Freites and Y.Texera Arnal (eds) *Tiempos de Cambio. La Ciencia en Venezuela 1936–1948,* Caracas: Fondo Editorial Acta Científica Venezolana. 215–40.

Gnecco Valencia, C. (1994) 'Fluting technology in South America', *Lithic Technology* 19:35–42.

Gnecco Valencia, C., Montoya, I. and Humberto, C. (1989) 'La Elvira: un sitio Paleoindio en el valle de Popayán', *Boletín de Arqueología* 4, 1:19–28.

Göbel, B. (1994) 'La incorporación de la agricultura a la economía de cazadores-recolectores', in J.L.Lanata and L.A.Borrero (eds) *Arqueología de Cazadores-Recolectores: Límites, Casos y Aperturas,* Buenos Aires: Arqueología Contemporánea. 33–9.

Goñi, R. (1988) 'Arqueología de momentos tardíos en el Parque Nacional Perito Moreno (Santa Cruz, Argentina)', *Precirculados X Congreso Nacional de Arqueología,* Buenos Aires: FFyL–UBA. 140–51.

Gradin, C., Aschero, C.A. and Aguerre, A. (1979) 'Arqueología del area Río Pinturas', *Relaciones de la Sociedad Argentina de Antropología* 13:183–227.

Gragson, T. (1992) 'Strategic procurement of fish by the Pumé: a South American "Fishing Culture"', *Human Ecology* 20:109–30.

Grupo de Zooarqueología de Camélidos (1994) *Zooarqueología de Camélidos. Perspectivas Teóricas y Metodológicas (Primera Parte),* Buenos Aires: GZC.

Guichón, R. (1994) Antropología biológica de Tierra del Fuego', unpublished doctoral dissertation, Universidad de Buenos Aires.

Hames, R. (1990) 'Sharing among the Yanomamö: Part I, the effects of risk', in E. Cashdan (ed.) *Risk and Uncertainty in Tribal and Peasant Economies,* Boulder: Westview Press. 89–105.

Hauthal, R. (1899) 'Reseña de los hallazgos en las cavernas de Ultima Esperanza', *Revista del Museo de La Plata* 9: 409–20.

Hill, K. and Hawkes, K. (1983) 'Neotropical hunting among the Ache of eastern Paraguay', in R.Hames and W.Vickers (eds) *Adaptative Responses of Native Amazonians,* New York: Academic Press. 139–88.

Hodder, I. (ed.) (1987) *The Archaeology of Contextual Meanings,* Cambridge: Cambridge University Press.

Hurt, W. (1974) *The Interrelationships between the Natural Environment and Four Sambaquis, Coast of Santa Catarina, Brazil,* Bloomington: Indiana University Museum Occasional Papers and Monographs.

Ibarra Grasso, D.E. (1955) 'Hallazgo de puntas paleolíticas en Bolivia', *Anais do 31 Congreso Internacional de Americanistas,* São Paulo: Anais Anhembi. 561–8.

—— (1971) *Argentina Indígena,* Buenos Aires: TEA.

Jaimes, A. (1990) 'Cazadores antiguos del Estado Lara', in A.Jaimes (ed.) *El Valle de Quibor en la Historia,* Quibor: Museo Arqueológico de Quibor. 5–11.

Jerandino, A., Castilla, J.C., Ramírez, J.M. and Hermosilla, N. (1992) 'Early coastal subsistence patterns in Central Chile: a systematic study of the marine-invertebrate fauna from the site of Curaumilla-l', *Latin American Antiquity* 3:43–62.

Johnson, E. and Politis, G. (1993) 'New World grassland hunter-gatherers in the Late Pleistocene and Early Holocene', *Current Research in the Pleistocene* 10:24–7.

Jones, G.T., Grayson, D.K. and Beck, C. (1983) 'Artifacts class richness and sample size in archaeological surface assemblages', in R.C.Dunnell and D.Grayson (eds) *Lulu Linear Punctuated: Essays in Honor of George Irving Quimby,* Michigan: Museum of Anthropology, University of Michigan (Anthropological Papers 72). 55–73.

Jones, K. (1993) 'The archaeological structure of a short-term camp', in J.Hudson (ed.) *From Bones to Behaviour. Ethnoarchaeological and Experimental Contributions to the Interpretation of Faunal Remains,* Carbondale: Southern Illinois University at Carbondale. 101–14.

Kaplan, H., Hill, K. and Hurtado, A.M. (1990) 'Risk, foraging and food sharing among the Ache', in E.Cashdan (ed.) *Risk and Uncertainty in Tribal and Peasant Economies,* Boulder: Westview Press. 107–43.

Laguens, A. (1994) 'Cambio organizacional y niveles de eficiencia adaptativa arqueológicos en el Valle de Copacabana, Córdoba, Argentina', unpublished doctoral dissertation, Universidad de Buenos Aires.

Laming-Emperaire, A. (1959) *A jazida José Vieira, um sitio guarani e pre-ceramico do interior do Parana,* Curitiba: Universidade Federal do Parana (Arqueología 1).

—— (1972) 'Les sites préhistoriques de Patagonie et de Terre de Feu', *Objets et Mondes* 12:201–24.

Lanata, J.L. (1987) 'Zonas de explotación económica en Cueva Traful I', *Comunicaciones. Primems Jornadas de Arqueología de la Patagonia,* Rawson: Dirección de Cultura. 145–52.

—— (1991) 'Según pasan los años. Hacia un modelo regional de los procesos naturales que afectan el registro arqueológico en Peninsula Mitre, Tierra del Fuego', paper presented at the 47th International Congress of Americanists, New Orleans.

—— (1996) 'Cambios para evolucionar: las propiedades del registro arqueológico y la evolución de los grupos humanos en Patagonia y Tierra del Fuego', in J.Gómez Otero (ed.) *Arqueología. Solo Patagonia,* Pto. Madryn: CENPAT–CONICET. 99–106.

Lanata, J.L. and Borrero, L.A. (1994) 'Riesgo y arqueología', in J.L.Lanata and L.A.Borrero (eds) *Arqueología de Cazadores-Recolectores. Límites, Casos y Aperturas,* Buenos Aires: Arqueología Contemporánea. 129–43.

Lanata, J.L. and Ratto, N.R. (1995) 'Tool-kits and sea lions: a case study from Tierra del Fuego', paper presented at the 60th Annual Meeting of the Society for American Archaeology, Minneapolis.

Lanata, J.L. and Winograd, A. (1988) 'Gritos y susurros: aborígenes y lobos marinos en el litoral de la Tierra del Fuego', in E.Reichel Dussan (ed.) *Arqueología de las Américas,* Bogota: Universidad de Los Andes. 227–46.

Lanning, E.P. (1967) *Peru Before the Incas,* New York: Prentice Hall.

Lavallée, D. (1985) *Telarmachay. Chasseurs et Pasteurs préhistoriques des Andes,* 1, Paris: Editions Recherche sur les Civilisations.

Legoupil, D. (1989) *Punta Baja. Ethno-archeologie dans les archipels de Patagonie: les nomades marins de Punta Baja,* Paris: Editions Recherche sur les Civilisations.

Lehmann-Nitsche, R. (1899) 'Coexistencia del hombre con un gran desdentado y un equino en las cavernas patagónicas', *Revista del Museo de La Plata* 9:455–72.

Leonard, R.D. and Jones, G.T. (1987) 'Elements of an inclusive evolutionary model for archaeology', *Journal of Anthropological Archaeology* 6:199–219.

Leroi-Gourhan, A. and Brézillion, M. (1972) 'Fouilles de Pincevent. Essai d'analyse ethnographique d'un habitat magdalenien (la section 36)', *Gallia Préhistoire,* 7th Supplement, Paris: CNRS.

López, J.M. and Bracco Boksar, R. (1994) 'Cazadores-recolectores de la cuenca de la laguna Merín: aproximaciones teóricas y modelos arqueológicos', in J.L.Lanata and L.A.Borrero (eds) *Arqueología de Cazadores-Recolectores. Límites, Casos y Aperturas,* Buenos Aires: Arqueología Contemporánea. 51–63.

Lumbreras, L. (1974) *La Arqueología como Ciencia Social.,* Mexico and Lima: HISTAR.

—— (1977) *The Peoples and Cultures of Ancient Peru,* Washington DC: Smithsonian Institution, 3rd printing.

Lynch, T. (1971) 'Preceramic transhumance in the Callejon de Huaylas, Peru', *American Antiquity* 36: 139–48.

—— (1974) 'The antiquity of man in South America', *Quaternary Research* 4:356–77.

—— (1980) *Guitarrero Cave. Early Man in the Andes,* New York: Academic Press.

—— (1990) 'Glacial-age Man in South America? A critical review', *American Antiquity* 55:12–36.

—— (1991) 'Lack of evidence for glacial-age settlement of South America: a reply to Dillehay and Collins and to Gruhn and Bryan', *American Antiquity* 56:348–55.

Lynch, T. and Pollock, S. (1980) 'Chobchi Cave and its place in Andean and Ecuadorian archaeology', *Anthropological Papers in Memory of Earl H.Swanson, Jr.,* Pocatello: Idaho State Museum of Natural History (Special Publication). 19–40.

MacNeish, R. (1979) 'The early man remains from Pikimachay Cave, Ayacucho Basin, Highland Peru', in R.L.Humphrey and D.Stanford (eds) *Pre-Llano Cultures of the Americas: Paradoxes and Possibilities,* Washington DC: Anthropological Society of Washington. 1–47.

Massone, M. (1981) 'Arqueología de la region volcánica de Palli Aike (Patagonia meridional chilena)', *Anales del Instituto de la Patagonia* 12:95–124.

—— (1987) 'Los cazadores paleoindios de Tres Arroyos', *Anales del Instituto de la Patagonia* 17:47–60.

Matos Mendieta, R. (1992) 'El precerámico de Junín: del lítico al Formativo', in B.Meggers (ed.) *Prehistoria Sudamericana. Nuevas Perspectivas,* Mexico: Taraxacum. 327–32.

Mayer-Oakes, W. (1986) 'El Inga. A paleo-indian site in the sierra of northern Ecuador', *Transactions of the American Philosophical Society* 76, 4:1–150

Meggers, B. (ed.) (1992) *Prehistoria Sudamericana. Nuevas Perspectivas,* Mexico: Taraxacum.

Meltzer, D. (1991) 'On "paradigms" and "paradigm bias" in controversies over human antiquity in America', in T.Dillehay and D.Meltzer (eds) *The First Americans. Search and Research,* Boca Raton: CRC Press. 13–49.

—— (1995) 'Clocking the first Americans', *Annual Review of Anthropology* 24:21–45.

Mena, F. (1991a) 'Cazadores-recolectores en el area patagónica y tierras bajas aledañas (Holoceno medio y tardio)', *Revista Arqueología Americana* 4:131–63

—— (1991b) 'Prehistoric resource space and settlement at the Rio Ibañez Valley', unpublished doctoral dissertation, UCLA.

Menghin, O.F.A. (1952) 'Fundamentos cronológicos de la prehistoria de Patagonia', *Runa* 5, 1 and 2: 23–43.

Mithen, S. (1990) *Thoughtful Foragers,* Cambridge: Cambridge University Press.

Muscio, H.J. (1996) 'Poblaciones humanas y evolución en la Puna argentina. Desarrollo teórico para la arqueología del Valle de San Antonio de los Cobres, Salta', unpublished undergraduate dissertation, Departamento de Antropología, Universidad de Buenos Aires.

Nami, H.G. (1987) 'Cueva del Medio: perspectivas arqueológicas para la Patagonia austral', *Anales del Instituto de la Patagonia* 17:73–106.

—— (1993–4) 'Aportes para el conocimiento de técnicas líticas del Pleistoceno final. Análisis de artefactos bifaciales del norte de Venezuela (Colección Edmonton, Canada)', *Relaciones de la Sociedad Argentina de Antropología* 19: 417–50.

Nordenskiöld, E. (1900) 'Kacttagelser och fynd i grottor vid Ultima Esperanza i sydvestra patagonien', *Koglinga Svenska Vetenskamps—Akademien Handlingar* 33:1–24.

Nuñez, L. (1983) *Paleoindio y Arcaico en Chile: Diversidad, Secuencia y Procesos,* Mexico: Editorial Cuicuilco.

—— (1989) 'Los primeros pobladores', in H.Niemeyer and V.Schiappacase (eds) *Culturas de Chile. Prehistoria,* Santiago: Andrés Bello. 13–32.

Nuñez, L. and Santoro, C. (1990) 'Primeros poblamientos en el cono sur de America', *Revista de Arqueología Americana* 1:91–139.

O'Brien, M. and Holland, T.D. (1990) 'Variation, selection and the archaeological record', *Archaeological Method and Theory* 2:31–79.

—— (1992) 'The role of adaptation in archaeological explanation'', *American Antiquity* 57:36–59.

—— (1995) 'Behavioral archaeology and the extended phenotype'', in J.M.Skibo, W.H.Walker and A.E. Nielsen (eds) *Expanding Archaeology,* Salt Lake: University of Utah Press. 143–61.

Olivera, D. (1988) 'La opción productiva: apuntes para el análisis de los sistemas adaptativos de tipo Formativo en el Noroeste Argentino', in *Precirculados IX Congreso Nacional de Arqueología Argentina,* Buenos Aires: FFLL–UBA. 83–101.

Orquera, L.A. (1984–5) 'Tradiciones culturales y evolución en Patagonia', *Relaciones de la Sociedad Arqentina de Antropología* 16:249–67.

Orquera, L.A. and Piana, E.L. (1988) 'Human littoral adaptation in the Beagle Channel region: maximum possible age', *Quaternary of South America and Antarctic Peninsula* 5:133–67.

—— (1993–4) 'Lancha Packewaia: Actualización y rectificaciones'', *Relaciones de la Sociedad Argentina de Antropología* 19:325–62.

Orquera, L.A., Salas, A., Piana, E.L. and Tapia, A. (1977) *Lancha Packewaia. Arqueología de los Canales Fueguinos,* Buenos Aires: Huemul.

Ortiz-Troncoso, O.R. (1975) 'Los yacimientos de Punta Santa Ana y Bahía Buena (Patagonia Austral). Excavaciones y fechados radiocarbónicos', *Anales del Instituto de la Patagonia* 6:93–122.

—— (1991) 'Desarrollo histórico de las investigaciones arqueológicas en Patagonia Austral y Tierra del Fuego', *Anales del Instituto de la Patagonia* 20:29–44.

Pelegrin, J. and Chauchat, C. (1993) 'Tecnología y función de las puntas de Paijan: el aporte de la experimentación', *Latin American Antiquity* 4:367–82.

Piana, E., Vila, A., Orquera, L. and Estévez, J. (1992) 'Chronicles of "Ona-Ashaga": archaeology in the Beagle Channel (Tierra del Fuego)', *Antiquity* 66:771–83.

Politis, G. (1984) 'Arqueología del area interserrana bonaerense', unpublished doctoral dissertation, Universidad Nacional de La Plata.

—— (1988) 'Paradigmas, modelos y métodos en la arqueología de la Pampa bonaerense', in H.Yacobaccio (ed.) *Arqueología Argentina Contemporánea,* Buenos Aires: Búsqueda. 59–107.

—— (1992a) 'lntroducción', in G.Politis (ed.) *Arqueología en America Latina Hoy,* Bogota: Biblioteca Banco Popular. 14–29.

—— (1992b) 'Los Nukak: la arquitectura del nomadismo en la Amazonia colombiana', *PROA* 412:11–20.

—— (1995) 'The socio-politics of the development of archaeology in Hispanic South America', in P.J.Ucko (ed.) *Theory in Archaeology. A World Perspective,* London: Routledge. 197–235.

—— (1996) 'Moving to produce: Nukak mobility and settlement patterns in Amazonia', *World Archaeology* 27: 492–511.

Politis, G. and Rodríguez, J. (1994) Algunos aspectos de la subsistencia de los Nukak de la Amazonia colombiana', *Colombia Amazónica* 7:169–207.

Politis, G., Aschero, C.A. and Borrero, L.A. (1990) 'The Late Pleistocene/Early Holocene peopling of Argentina', unpublished manuscript.

Pozorski, S. and Pozorski, T. (1995) 'Paleoenvironment at Almejas, a mid-Holocene site in the Casma Valley, Peru', paper presented at the 60th Annual Meeting of the Society for American Archaeology, Minneapolis.

Prieto, A. (1989) 'Evolución y formas de poblamiento precolonizador en la zona centro oriental de Magallanes', *Actas del II Congreso de Historia de Magallanes y III Congreso de Historia Regional de Chile,* Punta Arenas: Ediciones Universidad de Magallanes. 9–18.

Ratto, N. (1994) 'Funcionalidad vs. adscripción cultural. Cabezales líticos en la margen norte del Estrecho de Magallanes', in J.L.Lanata and L.A.Borrero (eds) *Arqueología de Cazadores-Recolectores. Límites, Casos y Aperturas,* Buenos Aires: Arqueología Contemporánea. 105–20.

Reitz, E.J. (1995) ‘Environmental change at the Ostra base camp: the vertebrate faunal evidence’, paper presented at the 60th Annual Meeting of the Society for American Archaeology, Minneapolis.

Rick, J. (1980) *Prehistoric Hunters of the High Andes,* New York: Academic Press.

Rindos, D. (1984) *The Origins of Agriculture. An Evolutionary Perspective,* New York: Academic Press

—— (1989a) ‘Undirected variation and the Darwinian explanation of cultural change’, *Archaeological Method and Theory* 1:1–45.

—— (1989b) ‘Diversity, variation and selection’, in R.D.Leonard and G.T.Jones (eds) *Quantifying Diversity in Archaeology,* Cambridge: Cambridge University Press. 13–24.

Roth, S. (1899) ‘Descripción de los restos encontrados en la caverna de Ultima Esperanza’, *Revista del Museo de La Plata* 9:421–53.

Salazar, E. (1974) ‘Chinchiloma’, *Revista de Antropología* 5:1–69.

—— (1979) *El Hombre Temprano en la Region del Ilalo, Sierra del Ecuador,* Cuenca: Publicaciones de la Universidad de Cuenca.

—— (1988) ‘El hombre temprano en el Ecuador’, in E.Ayala Mora (ed.) *Nueva Historia del Ecuador,* vol. 1, Quito: Corporación Editora Nacional-Grijalba. 73–128.

—— (1992) ‘El intercambio de obsidiana en el Ecuador precolombino. Perspectiva teórico-metodológica’, in G.Politis (ed.) *Arqueología en America Latina Hoy,* Bogota: Biblioteca Banco Popular. 116–37.

Sanguinetti, A.C. (1976) ‘Excavaciones prehistóricas en la Cueva Las Buitreras (Prov. de Santa Cruz)’, *Relaciones de la Sociedad Argentina de Antropología* 10:271–92

Sanguinetti, A.C. and Schlegel, M.L. (1972) ‘Industrias arcaicas del Río Neuquén’, *Relaciones de la Sociedad Argentina de Antropología* 6:91–108.

Sanoja, M. (1982) ‘Modos de producción precapitalistas en Venezuela’, *Boletín de Antropología Americana* 6:5–17.

Saxon, E.C. (1976) ‘La prehistoria de Fuego-Patagonia: colonización de un habitat marginal’, *Anales del Instituto de la Patagonia* 7:63–73.

Scheinsohn, V. and Ferretti, J.L. (1995) ‘The mechanical properties of bone materials in relation to the design and function of prehistoric tools from Tierra del Fuego, Argentina’, *Journal of Archaeological Science* 22: 711–17

Schiffer, M.B. (1987) *Formation Processes of the Archaeological Record,* Albuquerque: University of New Mexico Press.

Schmitz, P.I. (1987) ‘Prehistoric hunters and gatherers of Brazil’, *Journal of World Prehistory* 1:53–126

Schobinger, J. (1969) *Prehistoria de Suramérica,* Barcelona: Labor.

Simonetti, J. and Cornejo, L.E. (1991) ‘Archaeological evidence of rodent consumption in Central Chile’, *Latin American Antiquity* 2:92–5.

Stothert, K. (1983) ‘Review of the early preceramic complexes of the Santa Elena Peninsula, Ecuador’, *American Antiquity* 48:122–7.

—— (1988) *La Prehistoria Temprana de la Peninsula de Santa Elena: Cultura Las Vegas,* Guayaquil: Museos del Banco Central de Ecuador.

Taddei, A. (1987) ‘Algunos aspectos de la arqueología prehistórica del Uruguay’, in L.Nuñez and B.Meggers (eds) *Investigaciones Paleoindias al Sur de la Línea Ecuatorial,* Antofagasta: Estudios Atacameños. 62–93.

Tartusi, M.R.A. and Nuñez Regueiro, V.A. (1993) *Los Centros Ceremoniales del NOA.* San Miguel de Tucumán: Instituto de Arqueología, Universidad Nacional de Tucumán (Publicaciones 5, Serie Ensayos 1).

Thomas, D.H. (1975) ‘Non-site sampling in archaeology: up the creek without a site?’, in J.Mueller (ed.) *Sampling in Archaeology,* Tucson: University of Arizona Press. 61–81.

Trigger, B.G. (1989) *A History of Archaeological Thought,* Cambridge: Cambridge University Press.

Van der Hammen, T. and Ortiz-Troncoso, O.R. (1992) ‘Arqueología y medio ambiente en Suramérica septentrional’, in O.R. Ortiz-Troncoso and T. Van der Hammen (eds) *Archaeology and Environment in Latin America,* Amsterdam: Instituut voor Pre en Protohistorische Archeologie Albert Egges van Giffen. 9–44.

Vargas Arenas, I. (1986) ‘Definición de conceptos para una arqueología social’, in O.M.Fonseca Zamora (ed.) *Hacia una Arqueología Social,* Caracas: Fundación de Arqueología del Caribe. 136–52.

Vargas Arenas, I. and Sanoja Obediente, M. (1992) 'Revision crítica de la arqueología sudamericana', in B. Meggers (ed.) *Prehistoria Sudamericana. Nuevas Perspectivas,* Mexico: Taraxacum. 35–44.

Whitley, D.S. and Dorn, R.I. (1993) 'New perspectives on the Clovis vs. pre-Clovis controversy', *American Antiquity* 58:626–47.

Willey, G. and Phillips, P. (1958) *Method and Theory in American Archaeology,* Chicago: University of Chicago Press.

Willey, G. and Sabloff, J. (1984) *History of American Archaeology,* San Francisco: W.H.Freeman.

Wolford, J. (1991) 'Stone tool analysis in twentieth-century South America: progress, process and prospects', paper presented at the 47th International Congress of Americanists, New Orleans.

Yacobaccio, H.D. (1991) 'Arqueología de cazadores-recolectores de la Puna', unpublished doctoral dissertation, Universidad de Buenos Aires.

—— (1994) 'Argentinian archaeology: the last 20 years', *Society for American Archaeology Bulletin* 12, 4: 10–11.

Part 2

Key issues in Latin American archaeology

Chapter Six
The emergence of complex urban societies in Central Mexico
The case of Teotihuacan

Linda Manzanilla

INTRODUCTION

The Classic Horizon (the first nine centuries AD) in Mesoamerica is characterised by the first phase of macro-regional integration and the popularisation of a common tradition whose precedent is found in the Middle Formative Period. Such a common tradition includes the appearance of similar architectural forms, the establishment of vast exchange networks (of obsidian, jadeite, serpentine, cinnabar, feathers, hides, and other foreign raw materials), specialised crafts, the preeminence of temple institutions in economic and ritual control in Central Mexico, the sharing of the 260-day ritual calendar and the 365-day solar calendar, common religious thoughts dominated by the Rain-Thunder-Lightning God, and the spreading of writing systems.

The expansion of urban life in well-planned cities is one of the main hallmarks of the Classic Horizon in Mesoamerica; in the cities specialised services and crafts were acquired. These first urban centres show internal social differentiation based mainly on occupation. The pre-Hispanic cities of the central highlands of Mexico were multi-ethnic centres that took advantage of the occupational skills of foreign groups, strategic sites with respect to resource availability, loci of huge demographic concentrations, as well as manufacturing and exchange centres, capitals of large states, and planned settlements.

Teotihuacan was the first vast urban development, with a surface area of 20 km^2, containing more than half the population of the Basin of Mexico at that time. Its population has been calculated to have been between 40,000 and 200,000 inhabitants; its degree of urban planning and its density were unsurpassed in pre-Hispanic times. It was the pilgrimage centre *par excellence,* the place where sacred space and time were created, the archetype of the civilised city, the most sacred realm, and the mythical *Tollan* where crafts flourished. Even though its catchment area was limited to the Basin of Mexico (and probably the Valley of Toluca), in other respects, such as exchange and ritual relations, it included the regions of Puebla-Tlaxcala, Morelos and Guerrero, and the Valley of Tula. Teotihuacan established alliances with Monte Albán in the Oaxaca Valley and various degrees of intervention in the Mayan area. Enclaves of the city have been located in the Guatemalan highlands, on the Gulf Coast of Mexico, and probably in Michoacán.

With the collapse of the Teotihuacan state in the late Classic and Epiclassic Horizons, there was a rearrangement of power spheres, the 'balkanisation' of political units, in Cholula, Cacaxtla, Xochicalco, Tula, El Tajín, in the states of Puebla, Tlaxcala, Hidalgo and Veracruz, all neighbouring regions of the Basin of Mexico.

ARCHAEOLOGICAL RESEARCH AT TEOTIHUACAN

Archaeological research at Teotihuacan started in the seventeenth century with Sigüenza y Góngora (Schávelzon 1983), and continued in the nineteenth century with Antonio García Cubas, both parties working on the Pyramid of the Moon. Towards the end of the nineteenth century, William H.Holmes (1897) wrote a monograph emphasising that Teotihuacan was a true city, with extensive domestic quarters (and therefore not merely an uninhabited ceremonial centre); he further states that its inhabitants were primarily cultivators and craftsmen. Also at the end of the nineteenth century, Leopoldo Batres (1906) excavated the Pyramid of the Sun, the Temple of Agriculture, the Subterraneans, and the Temple of the Priests as part of the commemoration of the centennial of Mexican independence.

In the early twentieth century an interdisciplinary project directed by Manuel Gamio in the Teotihuacan Valley was carried out, culminating in the publication of the volumes entitled *La Población del Valle de Teotihuacan* (Gamio 1922). The research included sections devoted to the physical and biological environment, the pre-Hispanic population, colonial history, and the modern inhabitants. Gamio explored the Ciudadela, the Temple of the Feathered Serpent, and the Temple of Tlaloc.

Further research was carried out in the mid-twentieth century by Linné (1934, 1942; in the apartment compounds of Xolalpan and Tlamimilolpa), by Armillas (1944) and others (in the apartment compounds of Atetelco and Tetitla, and in the Viking Group), by Cook de Leonard (1957a, 1957b), and by Noguera and Leonard (1957) in the northwestern sectors of the valley.

During the 1960s, three large projects were undertaken: the Teotihuacan Mapping Project, under the direction of Millon (University of Rochester), the Teotihuacan Valley Project under Sanders (Pennsylvania State University), and the *Proyecto Teotihuacan* of the Instituto Nacional de Antropología e Historia (INAH), co-ordinated by Bernal (Manzanilla 1988). The first culminated in the publication of a detailed photogrammetric map of the ancient city of Teotihuacan, and a general interpretation of the various sectors (Millon 1973, 1981, 1988). The second included extensive regional surveys, as well as some test pits (Sanders 1966, 1970, 1986, 1987, 1994, 1995), which were later extended to other sectors of the Basin of Mexico, including Texcoco, Iztapalapa, Chalco-Xochimilco and Zumpango. The final report included a macro-regional model of settlement patterns (Sanders *et al.* 1979). The third project was devoted to the excavation and reconstruction of the civic and ceremonial core of Teotihuacan, as well as some élite apartment compounds (Bernal 1963; Acosta 1964; Séjourné 1966). Many particular studies emerged from these projects during the 1960s and 1970s, and included subjects such as vegetation, fauna, pottery, lithics, architecture, apartment compounds, demography, etc.

In the Puebla-Tlaxcala Valley, the German Foundation for Scientific Research was responsible for a large project involving historical geography, settlement patterns, ethnohistory, and excavations in Cholula and Cacaxtla (Kirchhoff 1968; García Cook 1981). In the 1970s, the great urban centre of Cantona, in the northern state of Puebla, was first surveyed (López de Molina 1986). Furthermore, in the Valley of Morelos, particularly at Xochicalco, settlement pattern research (Hirth 1978) and excavations (Saenz 1975) were carried out.

During the early 1980s, INAH's 'Teotihuacan Archaeological Project 1980–1982', under the direction of Rubén Cabrera (Cabrera Castro *et al.* 1982a, 1982b, 1991), explored two élite apartment compounds in the city, located to the north and south of the Temple of the Feathered Serpent, the northwestern compound of the San Juan River, the Street of the Dead compound, and some domestic structures.

Recent projects at Teotihuacan include the excavation of the Merchants' *Barrio* by Krotser and Rattray (1980); Manzanilla's analysis of domestic life at Oztoyahualco 15B:N6W3 (Barba and Manzanilla 1987; Barba *et al.* 1987; Manzanilla and Barba 1990; Manzanilla 1993, 1996); Serrano's exploration of burials at San Francisco Mazapan; Cabrera's and Cowgill's excavations in the Temple of the Feathered Serpent

(Cabrera Castro *et al.* 1990; Sugiyama 1989; Cabrera Castro and Cabrera 1991; Serrano *et al.* 1991); Spence's research at the Oaxaca *Barrio,* Tlailotlacan (Spence 1989, 1992; Rattray 1993); INAH's *Proyecto Especial 1992–94* under Matos' general direction, in the Pyramid of the Sun platform, in Group Five Prima, and in the Ventilla *Barrio,* this last under Cabrera's direction; and Manzanilla's study of a system of tunnels under the northern part of the city (Manzanilla *et al.* 1989; Arzate *et al.* 1990; Barba *et al.* 1990; Chávez *et al.* 1994; Manzanilla *et al.* 1994; Manzanilla 1994a, 1994b; Manzanilla *et al.* 1996). There is also a vast amount of information on the Classic Horizon of the Basin of Mexico from the 'Metro Project', of the Direction of Salvage Archaeology of INAH, particularly those of Line 7 in the sector of Molino del Rey, the Candelaria Church in Tacubaya, San Pedro de los Pinos, and the Bancomer Centre in Universidad Avenue of Mexico City.

SETTLEMENT PATTERNS AND URBANISM

Formative settlements in the Teotihuacan Valley

The settlement sequence of the Teotihuacan Valley began in the late Formative Cuanalan Phase (300–1 BC; Table 6.1). The villages of this phase were self-sustaining settlements that exploited a vast variety of resources (Manzanilla 1985): lacustrine (snails, freshwater fish, turtles, rushes, migratory fowl), alluvial plains and lake shores (maize, squash and bean cultivation; wild tomato, prickly pear, Mexican hawthorn, and leguminous wood gathering), and finally, forest products (pine and oak wood, white-tail deer, hare, and rabbit hunting).

The inhabitants of the Cuanalan village, located at the outlet of the San Juan River into the Texcoco lake, lived in wattle-and-daub houses measuring 5×5 m on clay and sand concretion platforms. The houses were disposed around common open spaces, where activities such as food preparation in hearths and ovens were carried out (Manzanilla 1985).

In the rest of the Basin of Mexico, a model of intercommunal complementarity may have existed: Terremote Tlaltenco specialised in lake resources; Coapexco in manufacturing grinding instruments; Ecatepec in obsidian distribution and so on, in what Sanders (1968b) has called the 'economic symbiosis' model.

During the Tezoyuca Phase (100 BC to AD 1) the location of some settlements changed to the summit of mountains and hills. Sanders (1968a; Sanders *et al.* 1979) mentions that for the first time there is a differentiation between centre and dependent settlements: the centre settlements had monumental architecture surrounded by domestic quarters. The mountain-top sites would have derived from a competitive social environment.

A little later, a drastic change took place: the emergence of Teotihuacan as a huge urban centre, with rural settlements in the rest of the Basin of Mexico. Sanders *et al.* (1979) have hypothesised that massive relocation of the population to Teotihuacan may have had a coercive component. However, in the last centuries BC, due to the eruption of the Xitle volcano in the southern sector of the Basin of Mexico, one of the largest Formative sites—Cuicuilco—was deserted (Córdova *et al.* 1994). Recently, other Late Formative sites, destroyed by contemporary volcanic eruptions, have been found on the eastern slopes of the Popocatepetl volcano (Uruñuela y Ladrón de Guevara and Plunket Nagoda 1995). The demographic rearrangements provoked by the eruptions resulted in the migration of people from these regions, and from Texcoco, to the Teotihuacan Valley, already inhabited by local villages (Manzanilla 1985).

The so-called Patlachique Phase is partially contemporary with the Tezoyuca Phase. During this

Table 6.1 Chronological sequences in Central Mexico

	Basin of Maxico	Puebla-Tlaxcala Valley	Oaxaca Valley	Tula Valley	Huaxreca	Veracruz
	(modified from Millon 1981)	(Garacía Cook 1981)	(Winter 1989)	(Cobean and Mastache 1989)	(García Payon 1974)	(Garacía Payon 1974)
1250 AD				Fuego		
	Tollan		Monte Albán			Destruction of El Tajín
			V	Tollan	V	
1000 AD		Texcálac				
	Mazapan			Corral		Tajín VI
			Monte Albán	Prado		Tajín V
	Coyotlatelço		IIIb-IV	Chingú		Tajín IV
500 AD	Metepec		Monte Albán		IV	
	Xolalpan		IIIa			Tajín III
		Tenanyécac				
	Tlamimilolpa		Transition II/ IIIa			Tajín II
250 AD						
				Formative		
	Miccaotli		<Monte Albán	Terminal		Tajín I
	Tazacualli		II			
1 AD						
	Cuicuilco					
		Tazaquipan			III	
250 BC			Monte Albán	Tepeji		
	Ticomán		I			
500 BC						
		Texóloc	Rosario			

time, there were three large settlements—one in the northwestern sector, another near the lake, and a third in the central-northern sector of the later city.

The Tzacualli Phase (AD 1–150, after Rattray 1991) is considered by Sanders and Millon to be the first urban stage, with a large settlement (4 km^2) located in the northwestern part of the valley (Oztoyahualco), although recent explorations in the sector do not support the idea of a dense urban settlement at that time (Manzanilla 1993). At this stage Teotihuacan was probably the largest Formative site in the Basin of Mexico.

A new settlement pattern was thus created in which the vast majority of the population was concentrated in an urban setting, and the remainder was rural. The northwestern sector of the valley, a sector deprived of running water but profuse in raw materials for construction (volcanic scoria, basalt, and tuff), was first occupied by groups of people who may have built their houses around three-temple plazas. These groups would have participated in the construction of the first monumental structures: the Pyramid of the Sun and the Pyramid of the Moon (Figs 6.1 and 6.2), followed by the Temple of the Feathered Serpent (Fig. 6.3).

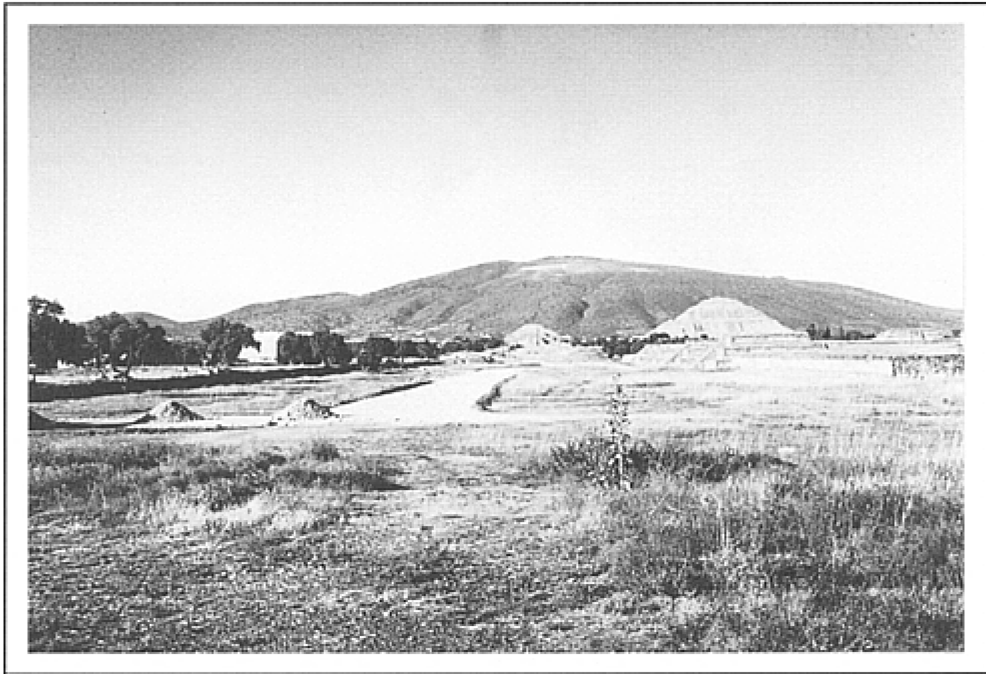


Figure 6.1 View from south to north of the Street of the Dead, the Pyramid of the Sun to the right, the Pyramid of the Moon in the centre back, and the huge volcano, the Cerro Gordo, further north.

Soon a vast amount of construction material was needed to build a huge city, material that was mined by tunnelling the volcanic scoria under the tuff (Manzanilla *et al.* 1989; Manzanilla 1994a, 1994b; Manzanilla *et al.* 1994). When the Street of the Dead (see Fig. 6.13) was demarcated, the population of constructors who formerly inhabited Oztoyahualco abandoned the sector and moved towards the central portion of the valley. Various factors thus contributed to the positioning of the city of Teotihuacan: its proximity to the obsidian mines of Otumba and Sierra de las Navajas; the presence of a concentration of freshwater springs; the position of the valley at the easiest access point from the Gulf Coast to the Basin of Mexico; the proximity of the lacustrine basin of Texcoco; and the existence of local raw materials for construction.

There are several ideas on the origins of the population concentrated in the Teotihuacan Valley at the beginning of the Formative Period. Linné (1942:184) thought that Late Formative populations in the Basin of Mexico were related to the Bajío and West Mexican groups, and that afterwards groups from the Gulf Coast, who practised cranial deformation, may also have migrated to the Basin. With respect to the first point made by Linné, there is clear evidence of relations with Chupícuaro in the Late Formative sites of the northern half of the Basin of Mexico (Manzanilla 1985). However, Gamio (1920:8) considered that Otomí groups populated the Teotihuacan Valley, and that groups from other origins arrived in the region subsequently

With respect to the language the Teotihuacans spoke, Lehmann thought that they spoke the *Náhuat,* an archaic form of the *Náhuatl* language; Jiménez Moreno mentioned that during the first two centuries AD there were Nahua-totonac groups, but after the third century AD the Nahuas coexisted with Mazatec-popoloca groups. Manrique Castañeda pointed out that during the Classic Horizon in Central Mexico, Yutoaztec and Otopame groups coexisted (Chadwick 1966:8; Manrique Castañeda 1975; Linné 1942).



Figure 6.2 The Pyramid of the Sun, facing west.

Changes in urban planning

The Miccaotli Phase (AD 150–200) began with the demarcation of the Street of the Dead and the resettling of the population along its margins. It is the main north-south axis of the city (with an orientation of 15° 17’ east of north), more than 3 km in length and 45 m in width. To span an incline of 30 m between the northern and southern ends, a series of stepped terraces was built along the axis.

It is possible that the main parallel and perpendicular axes were built through the use of pecked-cross markers located either in the central portion of the city (Viking Group, the Subterraneans, the Ciudadela; Hartung 1979), or in the neighbouring mountains (Cerro Gordo, Cerro Maravillas, and Cerro Colorado).

Another construction belonging to the Miccaotli Phase is the Temple of the Feathered Serpent (see Fig. 6.3), located on the margins of the San Juan river at the junction of the Street of the Dead with the East-West Avenue. The building was constructed in front of a huge plaza, and consecrated by a massive burial of symmetrical groups of one, four, eight, nine, eighteen, and twenty individuals (Cabrera Castro and Cabrera 1991:28), which may have been related to the structure of the ritual calendar of 260 days (López Austin *et al.* 1991).

Other buildings related to this phase may have included the Temple of Agriculture, famous for its mural paintings, particularly one with a complex offering scene (see Gamio 1922), and the Viking Group, which had a residential function and contained the so-called ‘mica floor’.

During the Tlamimilolpa Phase (AD 200–350, after Rattray 1991), the elements of urban planning at the site are clearly defined (Fig. 6.4; Millon 1973) as follows.

Firstly, we can see the existence of axes and streets: the Street of the Dead (north-south) and the East-West Avenue intersect to the north of the Ciudadela. The latter can be followed for more than 3 km to the

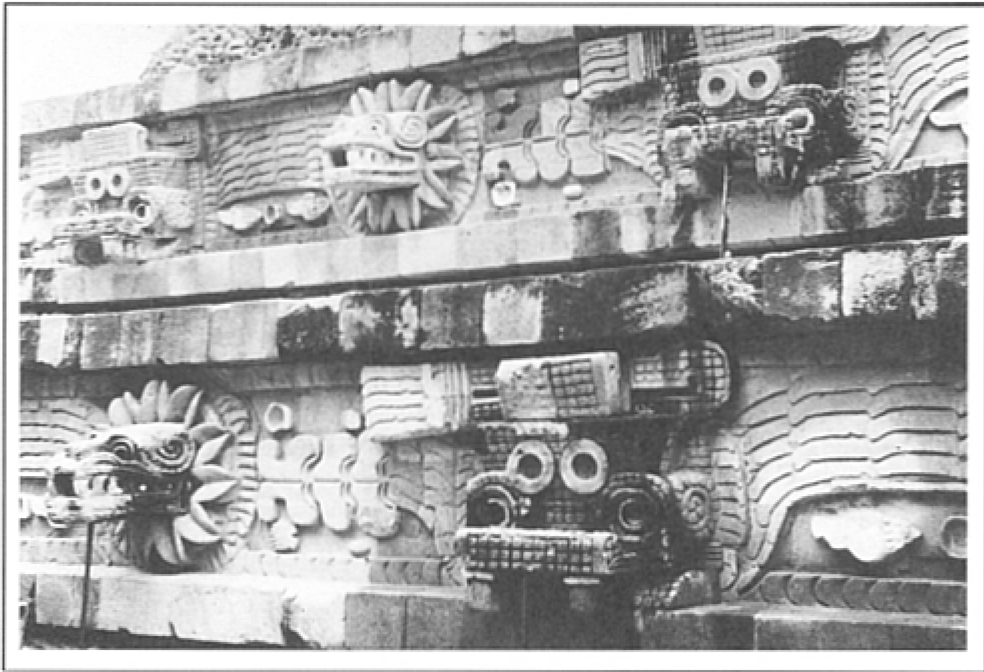


Figure 6.3 The Temple of the Feathered Serpent.

east, and 2 km to the west of the Great Compound. Consequently, the two streets divide the city into four quadrants, in which the Ciudadela, situated in the intersection, would have had special importance. The division of important sites into four quarters could have been related to Mesoamerican cosmovision.

Kubler (1967; Millon 1968:109) interpreted the representations of a vessel found in Calpulalpan as Tlaloc (Teotihuacan's symbol) and four companions (probably the representatives of the four quarters or four social groups) in relation to the quadrants. Three have the same headdress and are related to a serpent, a bird, and a coyote; the fourth is the only one with Tlaloc's eye circles, a different headdress, and a glyph representing its attire. It may be that one quarter was more important than the rest, being the earliest or the most prestigious.

Nearly all the constructions were distributed along the streets; all run parallel or perpendicular to the main axes, and are demarcated at regular intervals. Furthermore, in the neighbouring mountain slopes some kilometres from the centre of the city, other constructions are aligned to the city's grid (Millon 1967:41).

The second element is the water and drainage system: there seems to have been a supply of drinking water and a complex drainage system that derived from a reservoir 200 m to the northwest of the Pyramid of the Moon. Mooser (1968:36) proposed that the small nineteenth-century dam in Las Palmas may have concealed a Classic Horizon dam. Furthermore, the San Juan river was channelled to follow the city's grid, and the San Lorenzo river, originally meandering, was restricted to a straight line because of its sudden flooding.

The internal drainage system included a vast network of underground canals that converged into a central one flowing parallel to the Street of the Dead, and discharging into the San Juan river (Sanders 1964:124).

Thirdly, public and administrative constructions were placed along the Street of the Dead, although the particular functions of these buildings are not known. Recently, to the north and south of the Temple of the

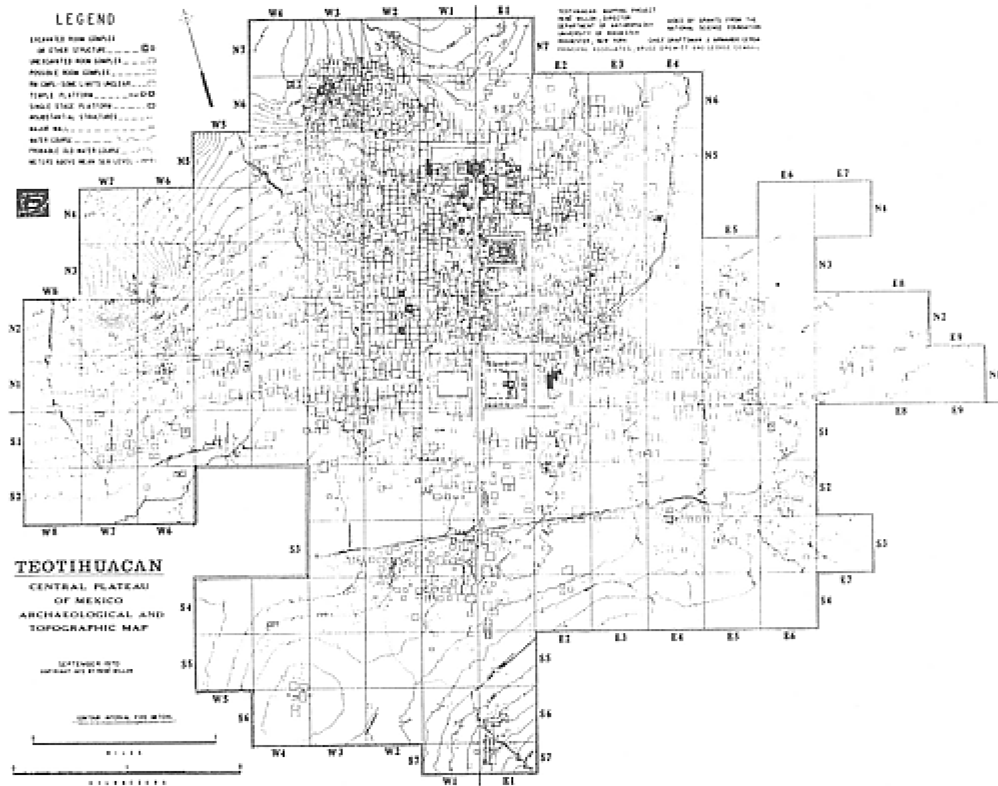


Figure 6.4 Map elaborated by 'The Teotihuacan Mapping Project' directed by René Millon (1993; Millon et al. 1973).

Feathered Serpent, two élite residential compounds have been excavated. According to Armillas and Cowgill (Millon 1968:110; Cowgill 1992:108), the Ciudadela may have been the seat of a dual government, and once the major religious and administrative centre of the city. However, the structures that border the Temple of the Feathered Serpent differ little from the vast range of apartment compounds, and we propose that the Xala Compound between the Pyramid of the Sun and the Pyramid of the Moon is also a possibility for the seat of the rulers.

The so-called Great Compound in front of the Ciudadela is the largest structure of the site, larger even than the Ciudadela. It consists of two 'U'–shaped wings (one to the north and the other to the south) surrounding a huge open space, with entrances from the Street of the Dead. Millon (1967:83) states that the plaza could have housed the main market of the city, because of its central position in the city, yet this hypothesis has not been tested and we propose an alternative interpretation below.

The fourth element consists of the residential compounds: a series of multifamily residential structures surround the core of the site, at Tlamimilolpa, Xolalpan, Atetelco, Tepantitla, Tetitla, Zacuala, etc. (Manzanilla 1996). Furthermore, Millon (1968, 1970:1080; Spence 1966) proposes the existence of a module of 57 m with apartment compounds housing 100, 50, and 20 people (possibly corporate groups, mainly devoted to crafts).

Apartment compounds are isolated from the streets by high external walls with no windows, thus providing privacy. Internal open spaces gave light, air, pluvial water (Millon 1967:43), and small refuse evacuation (Manzanilla 1993).

Lastly, wards and sectors for craft production are evidenced by the existence of more than five hundred concentrations of raw materials and debris (many obsidian), which were considered to be workshops by Millon's project, although some may have been refuse dumps. Specialisation to the level of the type of artifact manufactured was noted: some workshops made prismatic blades, others bifacial tools (Millon 1968: 116). The greatest obsidian concentration lies to the west of the Pyramid of the Moon, which perhaps suggests state control (Spence 1987). Other workshops were devoted to the production of pottery, figurines, lapidary, polished stone, and slate objects, although only a few have been excavated.

There are also foreign wards: the Oaxaca *Barrio* (Tlailotlacan) to the southwest (Spence 1989, 1992; Rattray 1993); the Merchants' *Barrio* to the east (Rattray 1987, 1988), where circular adobe domestic structures with Maya polychrome pottery were found; and perhaps a small enclave from Michoacán on the western fringes of the city (Cabrera Castro *pers. comm.*).

Greatest demographic concentration

During the Xolalpan Phase (AD 350–650), Millon (1967:46) observes a process of urban renewal as a result of excessive demographic growth. The city seems to have reached its demographic peak in *c*. AD 450–500, with a corresponding reduction in the neighbouring rural population; Millon states that the city contracted from 22.5 km^2 to 20.5 km^2.

At a regional level, Sanders *et al.* (1979:108) propose that in addition to Teotihuacan, there were 10 provincial centres, 17 large villages, 77 small villages, and 149 hamlets in the Basin of Mexico. They further state that 50–60 per cent of the Basin's population resided in Teotihuacan, and that the rural population in the northern half (Cuauhtitlan-Tenayuca) exceeded that of the south by a ratio of four to one. Due to the fact that the population in the southern part of the Basin of Mexico (Chalco-Xochimilco) was smaller and more evenly distributed, Sanders *et al.* (1979) interpret this as the removal of people from earlier centres of power and authority.

Teotihuacan declines soon after: the core of the city is set on fire during the Xolalpan Phase as part of the first internal revolt. The traces of the fire are visible in Courtyard I near the Pyramid of the Sun, the Quetzalpapalotl Palace (Armillas 1944:123; Bernal 1963:15), and on the margins of the San Juan river. At the end of this phase many people abandoned the outskirts of the city. During Coyotlatelco times (c. AD 650–850) the site was still inhabited, particularly in its central and eastern portions, and was still the largest site in the Basin of Mexico. Several factors may have been involved in the collapse of Teotihuacan. For instance, there may have been nomadic incursions. Jiménez Moreno (1959:1066) proposed that Otomí nomadic groups inhabiting the north of the valley could have been involved in the fire in the city's core. Then there is the possiblity of agricultural collapse and deforestation. Mooser (1968:31) considered that the growth of the city provoked the destruction of nearby forests, so that what were originally advantageous natural conditions became adverse. Millon (1967:48) adds that immoderate wood-cutting for construction and lime-processing produced erosion, which then caused a decrease in agricultural soil humidity. Barba (1995) calculated that the city needed two million cubic metres of calcium carbonate for its plastering, and thus 2.2 million cubic metres of wood (four times the surface of the valley floor). The decrease of annual rainfall and persistent drought around AD 650 in Central Mexico (García 1974; Metcalfe *et al.* 1989; Manzanilla 1992b; O'Hara *et al.* 1993), meant that many semi-nomadic or nomadic groups were obliged to

migrate to more benign environments. The city may therefore have suffered from food shortages and an increasing process of social deterioration, making it vulnerable to external threats.

Thirdly, powerful marginal groups may have posed a threat. Palerm and Wolf (1972:191–3) considered that increasing aridity in the northern frontier of Mesoamerica required the organisation of irrigation systems and the need for protection against the incursions of nomads. These factors could have reinforced military patterns in the local population, which could then be used against ancient civilisation centres such as Teotihuacan.

Lastly, supply networks may have been blocked. Chadwick (1966:2) has mentioned that Mixtecs, Olmec-xicallanc and Chocho-popolocs (who were in contact with Teotihuacan during its last phases) would have taken advantage of the social unrest in the city finally to block the exchange and access routes. Furthermore, Millon (1988:149) mentions that the causes of Teotihuacan's collapse included the deterioration of exchange networks.

Many of these factors, if not all, would have coincided in the last periods of Teotihuacan history. If the government was collective and in the hands of anonymous priests devoted to fertility rites, as the mural paintings suggest, we can imagine how the population of the city may have reacted towards drought, soil erosion, and lack of food. The result was population dispersion towards west, east and south.

SUBSISTENCE ECONOMY

Agriculture

In Teotihuacan it appears that all the apartment compounds had similar access to plant resources, including maize (*Nal-Tel Chapalote, Palomero Toluqueño,* and Conical), amaranth, beans, squash (*Cucurbita pepo, C. maxima, C. moschata,* and *C. ficifolia*), hot peppers, tomato, *Chenopodium (huauhzontle), Portulaca,* cactus, *Agave,* Mexican hawthorn *(Crataegus mexicana),* and Mexican cherries *(Prunus capuli)* (González 1993; Manzanilla 1985, 1993; McClung de Tapia 1979, 1980:162–3; Storey 1992:64). Other plants used for medicinal purposes, fuel, and construction included purslane, wild potatoes, wild reeds, umbelliferous plants, white sapodilla, pine, oak, juniper, ditch reeds, and bulrushes. A great abundance of tobacco *(Nicotiana)* at San Antonio Las Palmas (Monzón 1989), avocado at Teopancazco (McClung de Tapia 1979), cotton at Tlamimilolpa (Linné 1942) and Teopancazco (McClung de Tapia 1979) probably suggests differential access to exogenous botanical resources associated with manufacturing and ritual consumption. Also, cacao trees are represented in mural art.

Tetitla (Séjourné 1966) and Maquixco Bajo-Mound 3 (Sanders 1994:63) were rich in *Agave* end-scrapers, probably for *pulque* production. Outstanding differences have been noted in the number of scrapers per compound: for example, the three small compounds in Maquixco Bajo had 243 scrapers, while there were only 6 at Oztoyahualco 15B:N6W3. Likewise 93 projectile points were recovered at Maquixco Bajo compared with only 10 at Oztoyahualco 15B:N6W3 (Manzanilla 1993). These differences may reflect specialised procurement activities.

Rainfall agriculture was dominant, especially in the alluvial plain, and some traces of irrigation techniques have been found in the western portion of the valley (Palerm and Wolf 1972; Sanders 1977). Furthermore, the concentration of spring water in the Puxtla *Barrio* at San Juan Teotihuacan suggests it may have housed a canalisation system through cultivated fields, a system perhaps copied by the artists who painted the *'Tlalocan'* at Tepantitla (Angulo Villaseñor 1964; González Quintero and Sánchez Sánchez 1991).

Hunting, fishing and breeding

In general, important faunal resources included rabbits and hares, deer, supplemented by duck and fish, and in lesser degrees, armadillo, squirrel, goose, quail, dove, turtle, and lizard (Sanders 1994:31; Starbuck 1975; Valadez and Manzanilla 1988; Valadez Azúa 1993). At Oztoyahualco 15B:N6W3 we recorded a wide variety of rabbit and hare species (*Sylvilagus floridanus, Sylvilagus cunicularius, Sylvilagus audubonii, Romerolagus diazi,* and *Lepus callotis*); there was also evidence of rabbits being bred in captivity (Manzanilla 1993; Valadez Azúa 1993). At the site, the abundance of rabbit and hare bone also had an ideological counterpart in the form of a small rabbit sculpture that stood on a model temple in one of the ritual courtyards, probably as a patron deity. It is likely that rabbit feet were being ritually cut as part of a group ritual held in a small destroyed temple (Hernández 1993; Manzanilla 1988–89, 1993; Manzanilla and Ortiz 1991). Furthermore, Storey (1992) and Widmer (1987) found large numbers of rabbits, turkey eggs, small birds (such as quail and pigeon), small freshwater fish, and low counts of deer, dog, and turkey at Tlajinga 33. It is particularly interesting that Storey (1992) suggests that turkey eggs could have been obtained externally, without turkeys necessarily being bred at Tlajinga 33.

In ritual contexts at Tetitla and Yayahuala there were traces of eagle and hawk, and at Oztoyahualco 15B:N6W3 we found bear and a jaguar's fang, all of which are exogenous animals.

In Xolalpan times, there may have been shortages in meat distribution as a result of population pressure, to which one of the relevant responses may have been the breeding of rabbits, turkeys and dogs at Oztoyahualco. Another response could have been the consumption of freshwater fish at Tlajinga 33.

Starbuck suggests that from Terminal Preclassic to Late Classic, a change from locally available animal resources to a reliance upon a much-expanded support area, probably encompassing most of the Valley of Mexico, took place (Starbuck 1975). He further proposes a decrease in the importance of deer during the Classic Horizon. However, our research at the Late and Terminal Preclassic village of Cuanalan, in the southern Teotihuacan Valley, shows that a wide variety of lake, land, and mountain resources were consumed (Manzanilla 1985), and continued to be consumed in Classic Teotihuacan. Furthermore, at Teotihuacan we found botanical and faunal resources from the southern fringe of the Basin of Mexico, particularly the Chichinautzin Sierra (e.g. *Romerolagus diazi*). We thus share McClung de Tapia's idea (1978) that rather than intensifying the subsistence base in the valley itself, the Teotihuacans decided to extend their catchment area to the rest of the eastern Basin of Mexico. It is also possible that through ritualising the offering of surplus the priests organised central storage in order to maintain the redistribution network (Manzanilla 1992a).

We have no way as yet of comparing the number of individuals of each faunal species per unit area in the apartment compounds, because the only thorough data yet published are those of Oztoyahualco 15B:N6W3 (Valadez Azúa 1993; Valadez and Manzanilla 1988). However, even though approximately the same faunal and floral species are represented in all the apartment compounds, Tetitla showed an unprecedented diversity of birds (as well as a particular richness in botanical species); Yayahuala, a wide variety of marine mollusc (as well as a high proportion of *Chenopodium* and amaranth); Tlajinga 33, the consumption of small birds and freshwater fish; and Oztoyahualco 15B:N6W3, a reliance on several species of rabbits and hares. At present, the degree to which these data reflect differential access to faunal and floral resources cannot be determined, because many alternatives related to group choice and ideology have to be considered. However, one difference between compounds that can be pointed out is the presence of different hunting techniques represented by the range of technological implements. For example, Tetitla produced projectile points of various sizes to cope with small, medium, and large animals (Séjourné 1966: fig. 117). Even though Linné only published offerings from burials, the projectile points at Xolalpan (Linné 1934: figs 258, 259, 263, 264, 293–7, 298–311) and Tlamimilolpa (Linné 1942: figs 247, 252, 263–71)

show similar size ranges. In contrast, Oztoyahualco 15B:N6W3 contained projectile points of medium and large sizes, together with many examples of blow-gun projectiles, perhaps for hunting small animals (Hernández 1993). Linné (1942:187) also found blow-gun projectiles at Tlamimilolpa.

Gathering

Wild plants were gathered in the forests and on the lake shores, including pine, oak, juniper, hawthorn, purslane, ditch reed, bulrush, wild potato, umbelliferous plants and white sapodilla. Freshwater molluscs as well as marine species (from the Pacific and Atlantic Oceans) were found at Teotihuacan. Many were used for rituals or ornamentation (particularly *Oliva* sp.). In a mural painting at Tetitla there is a diver collecting molluscs in nets, while at Tepantitla there are depictions of flower-, fruit-, and branch-gathering.

MANUFACTURE

Teotihuacan crafts had prestige all over Mesoamerica during the Classic Horizon; they are found in élite contexts, and many were reproduced in local raw materials outside the Basin of Mexico. The majority of Teotihuacan's population may have been devoted to craft production, particularly of green obsidian prismatic blades and high-quality pottery, which were distributed amongst élites. Other products, such as those derived from cactus and *Agave,* as well as ritual paraphernalia, may have been exchanged with foreign groups (Millon 1993:28). In the city, distinct manufacturing wards have been identified, specifically those for blade production around the Pyramid of the Moon, and sectors of ceramic production in the southeastern part of the city.

Lithics

The manufacture of grey obsidian from Otumba and green obsidian from Pachuca (Spence 1987) was specialised to the level of the type of artifact produced: some workshops made prismatic blades in green obsidian, while others were devoted to producing knives and projectile points in grey obsidian. There was also a flint industry related to the production of projectile points, endscrapers and side-scrapers.

Basalt, andesite, sandstone, and slate were used for polished stone instruments, with the manufacturing sector probably being Tecópac, to the northeast of the city. Basalt was used for grinding stones, hammerstones, and pounders; volcanic scoria was used for smoothing plaster; andesite was used for construction slabs; and slate was used for ritual purposes. Furthermore, figurines, sculptures, and masks were made from exogenous raw materials (such as greenstone and jadeite).

Pottery

Even though a profusion of ceramic fragments appears at Teotihuacan, only a few examples of areas of pottery production have been identified within the city. At Tlajinga (San Sebastián) Krotser and Rattray (1980) identified a workshop for making San Martin Orange amphorae, craters and jars (in the proposed workshop there are traces of an open-air firing area, together with various instruments, raw material, and moulds). At Teopancaxco, workshops for 'Copa' ware have been proposed, while around the Ciudadela were censers' plaque workshops, evidence for which included wasters, unbaked clay, moulds, polishers, blades, knives, scrapers, pounders, and an open-air firing area (Múnera 1985).

Several figurine moulds were found at Xolalpan (Linné 1934: figs 199–208), and stone celts for cutting wood were particularly abundant in Grave 1 (Linné 1934: figs 246–56). These objects are not common in Teotihuacan in general: for example, the Oztoyahualco 15B:N6W3 compound produced only 132 figurines and figurine fragments from Teotihuacan times (Manzanilla 1993: 358–69), in comparison to Maquixco Bajo, where Kolb (1995) mentions 2,150 figurines from Teotihuacan times in all the compounds and neighbouring areas.

Within the Oztoyahualco 15B:N6W3 compound there seems to have been a differential consumption of pottery wares of diverse colours in each household or family unit. Matte and Red Hematite wares are associated with Household 1, whereas Household 2 used black, brown, Copa, Granular, and San Martin wares. Household 3—the poorest in pottery diversity and the richest in burials and foreign fauna—had a concentration of Orange and Thin Orange wares. Such differences may reflect differential access to pottery production in the urban setting for each nuclear household (Manzanilla 1993).

Other wares may have been channelled through the Teotihuacan distribution network, such as the Thin Orange wares, which were manufactured near Atlixco, Puebla. There are also foreign wares, particularly those from the Gulf Coast, the Mayan area, Oaxaca, and Michoacán.

Other crafts

Lapidary (Storey 1991; Widmer 1991), shell, textile, and feather-working workshops have all been located within Teotihuacan. Different kinds of pigments for painting walls, pottery, and probably codices, as well spindle-whorls and needles, were recorded at Xolalpan. Tlamimilolpa (Linné 1942) also had evidence of textile manufacture, as well as basket making and fibre-work. Tetitla (Séjourné 1966) produced evidence of bone instruments for working hides and polishing pottery.

In the author's reconstruction of the economic organisation of the city (Manzanilla 1992a) it was proposed that some crafts were directly maintained by the redistributive network in the hands of the priesthood in order to promote their products for long-distance exchange. Following Spence's (1987) classification, precinct workshops near the main public structures (around the Pyramid of the Moon, the Great Compound, and to the northeast of the Ciudadela), and probably also regional workshops (also located in main streets and structures), could have been under the direct control of the priests (Spence 1987: 434). Thus Spence's impression that the obsidian industry was 'administered' and 'highly centralised' may be explained by the fact that obsidian products were the main by-product of the redistributive circuit. Comparing the Classic and Postclassic obsidian industries, the latter was in the hands of part-time specialists, and was less centralised (Spence 1987), and probably was not so necessary for exchange. It may be that some of the potters were in a similar position: the censers' plaque workshop found to the north of the Ciudadela (Múnera 1985), for example, and the Copa ware and Matte ware production areas (for portable stoves, miniatures, *candeleros,* decorated vessels, etc.).

CONSTRUCTION

Domestic constructions

We know practically nothing about urban life during the Patlachique, Tzacualli, and Miccaotli Phases (first two centuries AD), except for some partial data on earthen floors and a single-room house in TC-49 (Charlton 1969) that resembles the local Formative houses of the village of Cuanalan (Charlton 1969; Manzanilla 1985). Furthermore, there are no data on houses for the farming population in the city. Millon

(1973) has stated that there is an outer fringe of adobe houses that may have been occupied by farmers. At Tlajinga 33, outside the city, we have an example of a craftsman's house, consisting of compounds around courtyards for living quarters and workshop areas for potters and lapidary workers (Storey and Widmer 1989).

Residential compounds

One of the hallmarks of Teotihuacan civilisation, from the third century AD onwards, is the presence of multi-family compounds, where the diversity of elements that constituted urban life can be studied. For the Tlamimilolpa Phase (AD 200–350) elements of urban planning at the site are clearly defined, as is domestic life in apartment compounds (Millon 1973). Several examples of these have been studied since Linné (1934) extensively excavated Xolalpan: Tlamimilolpa (Linné 1942), Atetelco, Tepantitla, La Ventilla (Piña Chan 1963; Cabrera Castro *pers. comm.*), Tetitla (Moore 1966; Séjourné 1966), Yayahuala (Séjourné 1966), Zacuala (Séjourné 1966), Bidasoa (Sánchez Alaniz 1989), San Antonio Las Palmas (Monzón 1989), El Cuartel, and structure 15B:N6W3 at Oztoyahualco (Manzanilla 1993, 1996; Manzanilla and Barba 1990). We also have information from Tlajinga 33 (Storey 1983, 1987, 1991, 1992; Storey and Widmer 1989; Widmer 1991) and Maquixco Bajo (TC8) on the southern outskirts of the city (Sanders 1966, 1994, 1995), as well as domestic structures in the foreign wards of the city (Rattray 1987, 1988, 1993; Spence 1989, 1992, 1994).

Apartment compounds generally consist of several rooms at slightly different levels arranged around open spaces (courtyards, refuse areas, and light wells) that served as places for rituals, rainwater collection, partial refuse disposal, and the provision of light (Fig. 6.5). The compounds consist of different apartments joined by passages for circulation; they have domestic sanctuaries, and the entire compound is enclosed within an exterior wall.

It is believed that these compounds were occupied by corporate groups with common kinship, residence, and occupation, and it has been archaeologically observed that craftsmen dedicated to the manufacture of different products lived in separate compounds (Millon 1968; Spence 1966). Whilst mapping the activities, shared by all households in the Oztoyahualco 15B:N6W3 compound, we found additional data supporting this idea. Unfortunately, fossil DNA tests on the burials (Millones 1994) did not provide sufficient collagen to evaluate kinship ties between individuals of each household.

The compounds vary considerably in surface area. Some are very large, such as Tlamimilolpa (Linné 1942), Yayahuala, Zacuala Palace, and Tetitla (*c.* 3,600 m^2; Séjourné 1966); others are medium sized, such as Tlajinga 33 (2,280 m^2; Storey 1992), Bidasoa (1,750 m^2 at S2E4; Sánchez Alaniz 1989), Xolalpan (more than 1,344 m^2; Linné 1934) and Mound 1–2 in TC8 at Cerro Calaveras (1,500 m^2; Sanders 1966, 1994). Other compounds are much smaller, such as that excavated at Oztoyahualco 15B: N6W3 (slightly more than 550 m^2; Manzanilla 1993), Mounds 3 and 4 at TC8 (340 and 529 m^2 respectively; Sanders 1966), and the compound excavated by Monzón at San Antonio Las Palmas (280 m^2 at N7W3; Monzón 1989).

Individual household sectors within the compound can be isolated either taking into consideration the circulation alleys or access points (Sanders 1994:19), or by mapping the different food consumption loci for each nuclear household. For example, the Oztoyahualco 15B:N6W3 compound had three sections (Fig. 6.6), and we propose that they were related to three households (Ortiz Butrón 1990; Ortiz Butrón and Barba 1993). Each apartment included a zone for food preparation and consumption, sleeping quarters, storage areas, sectors for refuse, patios for cult activities, and funerary areas. In addition, there were zones in which the entire family group or compound group (all the households in an apartment compound; see Sempowski 1994: 9–10) gathered to share activities, particularly those related to ritual activities and



Figure 6.5 The Yayahuala compound, following Séjourné 1966.

perhaps to the raising of domestic animals. Furthermore, we suspect that members of different household units participated in specialised activities related to the larger urban setting. In Oztoyahualco 15B:N6W3 the whole family group probably specialised in the stucco plastering of neighbouring three-temple plazas, and perhaps of other structures at Oztoyahualco. Other compound groups in the city seem to have been similarly devoted to ceramic production of certain wares, textile manufacture, obsidian or lapidary working, or even painting activities.

From 1985 to 1988 the apartment compound at Oztoyahualco 15B:N6W3, at the northwestern boundary of the city in Millon's N6W3 square, was carefully excavated (Manzanilla 1993, 1996) as part of an intensive interdisciplinary project. It was known that the stucco floors were scrupulously swept in the ancient domestic setting, so we would not have abundant macroscopical remains for our analysis. We thus planned a strategy that also took into consideration chemical traces of activities on the plastered floors, as well as microscopic evidence related to specific activities. We gathered architectural and funerary data as Linné (1934, 1942) did for Tlamimilolpa and Xolalpan, Séjourné (1966) for Tetitla, Yayahuala, and Zacuala, and Piña Chán (1963) and Vidarte for La Ventilla. We plotted the distribution of artifacts on floors as Monzón (1989) did for San Antonio Las Palmas, Sánchez Alaniz (1989) for Bidasoa and Sanders (1966, 1994, 1995) for Maquixco Bajo. We also screened and analysed flotation samples as Widmer (Storey and Widmer 1989; Widmer 1987) did for Tlajinga 33. These studies were supplemented by the fine-grained analyses of phytoliths and pollen, botanical and faunal macro-fossils, and chemical compounds on floors, as well as micro-artifactual distributions (Barba *et al.* 1987; Manzanilla 1988–89, 1993, 1996; Manzanilla and Barba

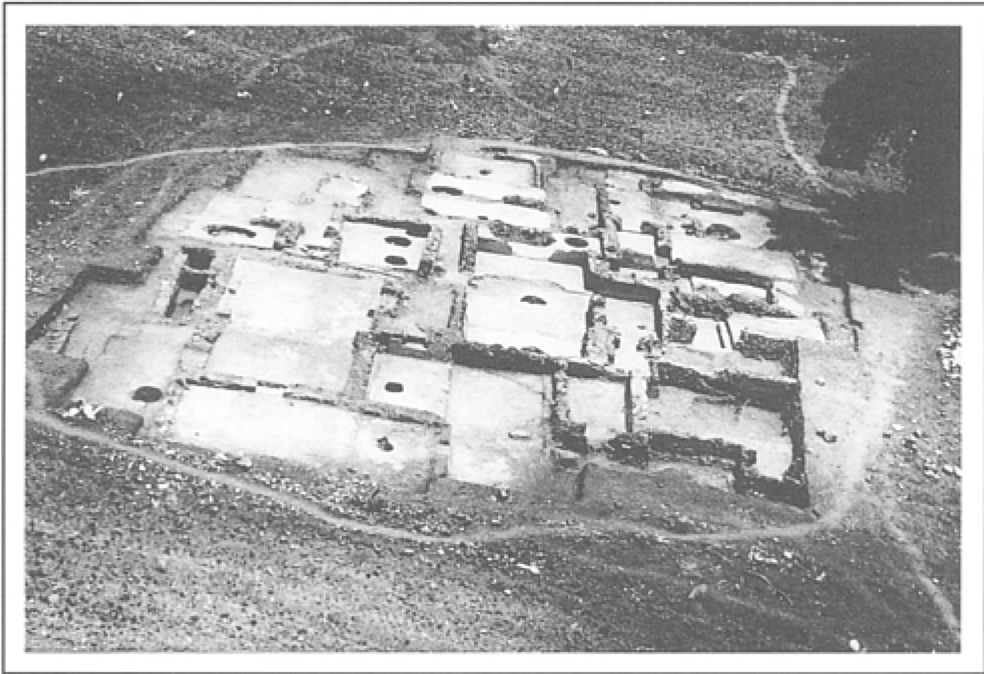


Figure 6.6 An aerial view of the Oztoyahualco 15B:N6W3 compound (Manzanilla 1993).

1990). As such, we obtained the anatomy of an apartment compound during Xolalpan times. This case study serves as a reference for the reconsideration of socio-economic variations in domestic compounds at Teotihuacan.

The Oztoyahualco 15B:N6W3 compound had been abandoned, with the residents taking most of their goods with them, so only traces of some *de facto* refuse were found in certain rooms, and some exceptional cases of *locus agendi* areas (Manzanilla 1986a, 1986b, 1988–89). During the excavation process discrete distributions that may have represented activity areas were located. Such distributions were usually structurally delimited, either representing offerings or burial cavities excavated in the floors, associations of storage vessels, or concentrations of artifacts or faunal remains in the corners of the rooms. They were described as potential activity areas exhibiting a specific set of characteristics. These artifactual patterns were then contrasted with the distribution of the biological elements and chemical compounds in order to gain an idea of the set of activities for each room.

One of the methodological approaches that was most useful in assessing past activities was the chemical analysis of the stucco floors of the compound (Manzanilla 1996). Barba (1986; Barba and Manzanilla 1987; Ortiz Butrón and Barba 1993) has proved, in ethnographical as well as archaeological examples, that stucco floors trap chemical compounds derived from repeated specific activities. At Oztoyahualco 15B:N6W3 samples were collected to a depth of 5 cm in each square metre of the stucco floor. The following tests were carried out on each sample:

1 Phosphate analysis. This semi-quantitative test was based on the intensity of blues generated in the surface of filter paper which reflects the quantity of phosphate in each sample. Areas where organic refuse was abundant tend to have high phosphate values.
2 Carbonates. The quantity of carbonates present in the sample was estimated based on their reaction to hydrochloric acid. A scale from one to five was employed to measure the level of intensity of these reactions. Leaving natural calcium carbonate deposition aside, carbonate concentrations could be derived either from *tortilla* preparation, or from stucco and limestone processing.
3 pH levels were determined by routine procedures used for soils in a water solution, and measured with a combined electrode: the presence of fire in the vicinity of a stucco floor increases pH values.
4 Colour. Soil samples were compared using a Munsell Soil Colour Chart. Colour can be an indicator of organic material; a change in colour may also show where a fire has been lit (Manzanilla 1996).

Specific chemical tests for sodium and iron were used in locations where it was expected that particular activities had been carried out. For example, iron concentrations are derived from *Agave* processing or from the butchering of animals. Organic and inorganic chemical analyses were also undertaken on the bottoms of specific types of ceramic vessels, and provided further information on food preparation and consumption.

At Oztoyahualco 15B:N6W3 there was, in general, a clear differentiation among the various sectors of the structure. The southern sector was associated with refuse; areas for food preparation and consumption, as well as the sleeping quarters, were set around the central portion of the compound; the eastern sector was rich in funerary and ritual components; the western sector was devoted to storage; and, finally, the northwestern sector had the largest courtyard, and was probably the compound's meeting place.

As mentioned above, there seems to have been a differential distribution of activities for each household within Oztoyahualco 15B:N6W3. Distribution maps of all types of archaeological material—ceramics, obsidian, polished stone, bone, antler, shell, chemical compounds, pollen, phytoliths, seeds and faunal macro-fossils—help differentiate some activities and choices particular to each nuclear household. For example, Matte and Red Hematite wares are associated with Household 1 situated to the south, together with the largest concentration of prismatic blades, ritual butchering of rabbits, and the presence of the Butterfly God. Household 2, on the other hand, to the west, used black, brown, Copa, Granular, and San Martin wares, and was characterised by the confinement of rabbits and hares, the butchering of animals for consumption —activities where side- and end-scrapers were used—the largest presence of foreign wares and minerals, and symbols of fire. However, Household 3, to the northeast, had a concentration of Orange and Thin Orange wares, together with Tlaloc symbols. Such finds may reflect differential access to pottery production in the urban setting for each nuclear household, as well as activity and ritual differentiation.

One of the greatest problems in comparing this apartment compound with the others excavated at Teotihuacan is the fact that, in the latter case, a high percentage of the data comes from small-scale intensive excavations, with no context control. The data from Oztoyahualco 15B:N6W3 can be compared only with those from extensive large-scale excavations, and then only in terms of presence/absence. For example, when we take into consideration the presence/absence of botanical and faunal resources, as well as exogenous raw materials, we conclude that the differences in access are very slight between compounds. There may be a whole range of socio-economic possibilities, with no clear-cut distinctions between groups in the urban setting. Differences in quantities are noticeable, but the problem is the comparability of the samples.

There are also differences in specialised activities between household groups of different compounds, as well as in dominant activities of households, which suggest group and family specialisations. Differences in the number of high-status products, particularly decorated ceramic tripods and mural paintings, and

variability in the quality of the construction itself, have been noted. One household in each compound seems to have been the most active in bonding the household group to the urban hierarchy At Oztoyahualco 15B:N6W3 this is seen in Household 3, related to the Tlaloc cult (Tlaloc vases, Tlaloc figurines, Tlaloc representations in 'handled covers'), the richest burials, and foreign fauna.

Many of the three-temple complexes found throughout the northern part of the ancient city may be centres of barrio-groups, where cult and exchange activities took place between a number of specialised corporate groups living in apartment compounds around the complexes. Other wards not involving three-temple complexes can be distinguished in the southern part of the city.

If Millon (1981:209) is correct in proposing that the apartment compounds are a by-product of state decisions to exercise efficient control over the population of the city, then a further area of research would be the articulation between these social units and the urban organisation as a whole. It is also possible that the inefficiency of the state bureaucracy and the inflexibility to change that may have caused its fall (Millon 1988), were in part provoked by the difficulty in harmonising the interests of such a vast array of ethnic, occupational, and social groups.

Public constructions

One of the main characteristics of Teotihuacan is the magnitude of its public constructions: the pyramids of the Sun (see Fig. 6.2) and Moon are monumental; the Temple of the Feathered Serpent stands out for its decoration and symbolism (see Fig. 6.3); and, in general, the remainder are characterised by the use of the *tablero-talud* (a sloping wall that supports a projecting vertical panel where mural paintings are set). Originally, a pattern of three-temple complexes was dominant, before the Street of the Dead was built. Architectural characteristics of the site include the use of painted pillars and columns, porticoes, stairways in the centre of façades, slab coating, and irregular stone and clay structure cores; a subterranean drainage system; and lime plastering of walls, floors, and maybe also roofs (the plaster was set on a bed of crushed volcanic scoria).

Crespo Oviedo and Mastache de Escobar (1981) proposed that in the Tula region there are two sites that could be considered Zapotec settlements from which lime was obtained for the plastering of Teotihuacan (El Tesoro and Acoculco). Spence (1992) supported this idea by proposing that the Zapotec ethnic group controlled the mining, processing, and importation of lime to the city. However, research at Oztoyahualco 15B:N6W3 does not support this interpretation, although this compound is nearly 3 km to the north of Tlailotlacan. Consequently, it was concluded that parts of the northwestern district of the ancient city had direct links with settlements in the Tula region, and that the compound was perhaps more related to Chingú (Díaz O. 1980), a Teotihuacan enclave in the Tula area, also located in the limestone region. The number of plaster 'polishers' made of volcanic scoria *(tezontle)* per square metre can be used to differentiate the relevance of this activity in apartment compounds, assuming that Linné and Séjourné retained all the specimens found. Tetitla had 0.19 polishers per square metre; the Oztoyahualco compound, 0.10; Xolalpan, 0.04; and Tlamimilolpa, 0.01.

SOCIO-POLITICAL ORGANISATION AND EXTERNAL RELATIONS

Very little has been concluded archaeologically with respect to the social organisation of complex urban centres such as Teotihuacan (see Cowgill 1983, 1992). The existence of multi-family apartment compounds may suggest the co-residence of corporate groups sharing kinship and domestic territory, as was the case with the *calpulli-units* in the Mexica state.

When analysing access to resources, it is clear there are no clear-cut differences between compounds that may suggest separate social strata. There seems to be a continuum of social groups, all with the same goods, but in different quantities. Only the surface of the compounds, the presence of mural art, and the preference for certain activities, plants, and animals distinguish the sets in this continuum. Recently, Cabrera *(pers. comm.)* excavated a large surface of the La Ventilla *Barrio,* with its ceremonial centre, and the different apartment compounds, some rich (with a large display of mural paintings), some poor (more domestic in character, and with evidence of lapidary work), around it.

Barbour (1993) has proposed that host figurines (large hollow pottery figurines, with small painted figurines inside) may be a symbolic representation of Teotihuacan's social structure. However, Paulinyi (1981) suggests that the existence of district groups may have had a part in corulership: the first district group is located to the west of the Great Compound; the second, in the northwestern part of the valley; the third, to the east of the Street of the Dead; the fourth, in the eastern fringe of the city; and the fifth, to the south of the San Lorenzo river.

With respect to coercive structures within Teotihuacan society, Millon (1993:31) states, from the evidence of mural paintings, that there were two military wards at Teotihuacan: one centred in Atetelco, in the southwestern part of the city, and the other, Techinantitla, in the northeastern section. However, the evidence of large coercive displays within the city is scarce; for example, evidence of temple consecrations through human sacrifices are limited to particular events and times (e.g. the Temple of the Feathered Serpent). C.Millon (1973) and Pasztory (1978) have interpreted certain human representations with tassel headdresses as military representatives of the state in foreign lands, although the military status of the representations is not very clear. López Austin (1989:32) proposed that Teotihuacan was the first site where the transformation from lineage society to state was achieved. The ancient lineage heads would have separated, forming an autonomous group of bureaucrats and distributors of goods that would have exercised power over a particular territory.

There is no doubt that processions of anonymous human figures in ritual paraphernalia are the most common human depictions in mural art at Teotihuacan. The lack of dynastical iconography and the depictions of priestly tasks leads to the conclusion that the administrative, political, and ritual undifferentiated leadership of the city was collective. Millon (1967:149–50), for example, states that priests played a major role in the city, and that integration could have been achieved through constant pilgrimage to temples and exchange sites. He proposes (Millon 1988:109) that politics was sacralised. We add that Teotihuacan was the main pilgrimage centre of the Mexican highlands mainly because it was conceived of as the model of the Mesoamerican cosmos.

With respect to land control, Sanders (1966:134) states that priestly institutions could have controlled piedmont and alluvial land, and that religion was the main integrating factor in the city. In our reconstruction of the economic organisation of the Teotihuacan priesthood (Manzanilla 1992a), we proposed that the ruler-priests who administered Teotihuacan created different redistributive circuits to assure the maintenance of the bureaucracy and the full-time state craftsmen. These redistributive networks ran parallel to other types of exchange systems: barter between producers, long-distance élite exchange, direct provisioning of sumptuary goods in colonies, and foreign merchants using the city's distributive system. The first stage of the redistributive network—the offering of surplus—is invoked in the central mural painting of the Temple of Agriculture, in the Plaza of the Moon, in a similar way to that in which proto-Sumerians represented redistribution on vases. Such an interpretation is contrary to Millon's (1967: 152) interpretation of the mural as a market, as there is no two-way traffic, but rather people delivering various things to two ritual structures.

As far as centralised storage is concerned, Cowgill (1987) has established the existence of large concentrations of San Martin amphorae in a 300-m band west and north of the Street of the Dead. The redistribution of foodstuff would have been a regular phenomenon to maintain state bureaucrats, craftsmen, and emissaries, and occasionally ritual collective meals.

Redistributive activities would have been symbolically reinforced by mural paintings depicting priest-administrators donating fertility symbols (see Miller 1973; C.Millon 1973). It is not by chance that the Ciudadela is situated just in front of the Great Compound, both being places where ritual donation of offerings and ritual meals may have taken place. In our model, the Great Compound, rather than a market, would have been a storage place for the different sectors of the city, and also the main locus of redistribution. The regional interests that Sload (1987) invokes for the Great Compound's domestic structures may be related precisely to the storage of specialised products from the different productive sectors.

Teotihuacan was also the central place for a wide distribution of goods which followed definite routes. Perhaps the best-defined route has been located in the Puebla-Tlaxcala region, where eighty Teotihuacan settlements are arranged in a corridor that links the capital to Cholula, and then to the Oriental Basin and the Gulf Coast (García Cook 1981). The Merchants' *Barrio* and the Oaxaca *Barrio* were foreign wards, and maybe not the only ones. Recently, West Mexico pottery and figurines have been found in the western part of the city (Cabrera Castro *pers. comm.*). The Merchants' *Barrio* was probably inhabited by merchants from the Gulf Coast who lived in round houses and brought Maya pottery and Gulf Coast products. The Oaxaca *Barrio* may have been involved in the distribution of shell ornaments (Rattray 1987).

There were also sites that may have established political alliances with Teotihuacan (such as Tikal and Monte Albán); other sites had Teotihuacan enclaves (Kaminaljuyú, in Guatemala; Chingú, in the Tula Valley; Matacapan, in the Tuxtlas Region in Veracruz; and possibly also Tingambato or Tres Cerritos in Michoacán); other sites may have been secondary dependent centres (Cholula, in Puebla); and others may have belonged to common exchange routes (sites in Veracruz, Puebla, and Guerrero, for example). It is also known that the Teotihuacans exploited cinnabar in the Sierra Gorda of Querétaro, and maybe also in San Luis Potosí. Furthermore, in the Valley of Morelos, particularly around the Amatzinac river, there are strong similarities between the local ceramic wares and those that Teotihuacan distributed: Thin Orange and Granular ware, as well as miniatures, theatre-type censers, figurines, tripods, etc. Teotihuacan control over this region provoked important demographic changes, with a regional system dominated by only one administrative centre at San Ignacio (Hirth 1978:325).

Cholula and its dependent centres—Manzanilla, Flor del Bosque, San Mateo, and Chachapa, in Puebla (García Cook 1981), as well as San Ignacio (Morelos) and Chingú (Hidalgo)—may have been provisioning centres for cotton, avocado, limestone, and so on.

Even though exchange was important, it seems unlikely that there were large amounts of goods flowing through long-distance exchange. For example, green obsidian from Teotihuacan reached Tikal in extremely small quantities, and may have been used as presents between high-status groups (Sidrys 1977; Spence n.d. in Millon 1988:119).

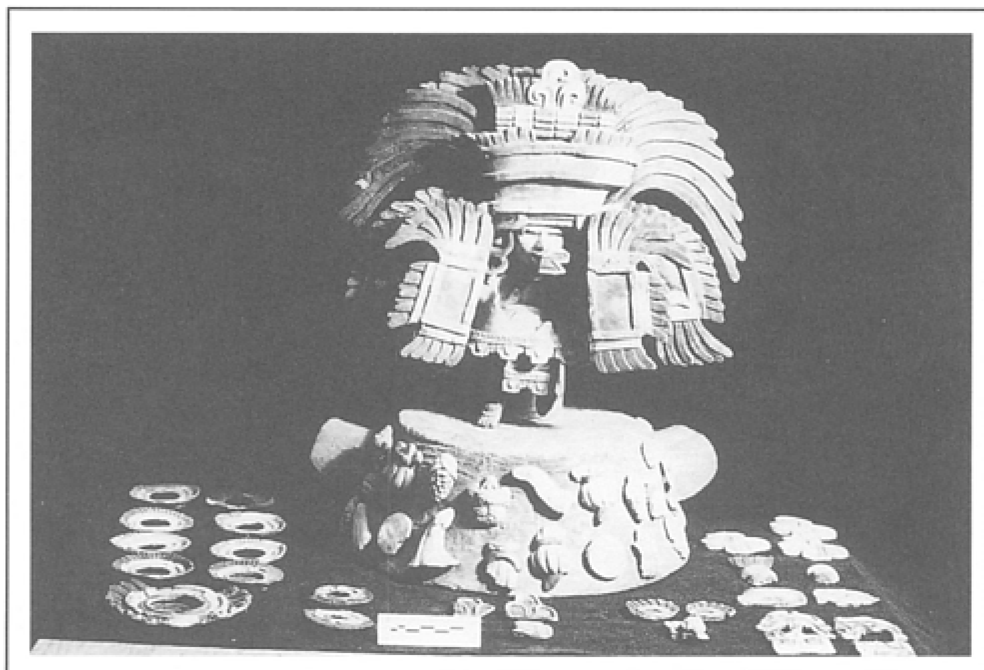


Figure 6.7 Theatre-type censer found dismantled around a burial in Oztoyahualco 15B:N6W3 (Manzanilla 1993; Manzanilla and Carreón 1991).

THE SYMBOLIC SPHERE

The domestic level

It has been proposed (López Austin 1989) that a juxtaposition of deities on two levels occurred for the first time at Teotihuacan, that is, lineage gods, who were patrons of lines of descent, with the deity Tlaloc above them as god of place, protector of territory, and patron of the city and the caves.

Among the deities at Teotihuacan, the Fire God (Huehuetéotl), present from the Formative Horizon, always appears associated with the eastern portions of apartment compounds. Another deity found in domestic contexts is the Fat God, who is generally represented in figurines or appliquéd on tripod vessels. The Butterfly Deity is depicted on incense burners and is probably linked to death and fertility. In particular, the impressive theatre-type censer found accompanying the burial of an adult male had butterfly wings on the chest of the main figure, and displayed a wide array of food and economically important plants (Fig. 6.7; Manzanilla and Carreón 1991; Paulinyi 1995).

In domestic contexts, the state god Tlaloc was represented by figurines with goggles and elaborate headdresses, as well as in Tlaloc vases and on a 'handled cover'. However, at Oztoyahualco 15B:N6W3 there is also evidence of patron gods related to particular families, such as the stucco rabbit sculpture found on a miniature Teotihuacan temple-shaped shrine (made of basalt) in one of the ritual patios. In the Oztoyahualco compound there were three ritual courtyards, each corresponding to a household. The largest probably served the compound group as a whole and was called the 'Red Courtyard', due to its mural

paintings; it was the only one with a central altar in its lower construction level. The second provided evidence of theatre-type censers and many Aztec pits that probably disturbed earlier offerings or burials. The third courtyard contained the portable model basalt temple and the rabbit sculpture.

Some activity areas related to ritual preparation were detected around these courtyards. At Oztoyahualco 15B:N6W3, in the corner of C9 (near the main shrine), a concentration of fiftyeight obsidian prismatic blade fragments, a basalt percussor, and a limestone semi-sphere (with radial cutting marks probably caused by the continuous butchering of rabbit and hare) were found (Hernández 1993; Manzanilla 1993). There were also numerous funerary and offering pits, particularly in the eastern half of the compound. The northeastern household (number 3) had the most burials and also the greatest quantities of foreign fauna: bear, jaguar, mother-of-pearl and other marine shells *(Spondylys calcifer)*.

Religion can be seen as a sphere of socio-political integration organised into a hierarchy onto which the patron gods of household groups and *barrios,* occupational deities, the gods of specific priestly groups, and state deities such as Tlaloc were superimposed (Manzanilla 1993, 1996). Teotihuacan society was consolidated mainly through religion: the concept of the four courses of sacred space permeated the domestic domain of Teotihuacan (Manzanilla 1993). Spatial patterning seems to have been established for the disposition of functional sectors, which extended beyond the framework of nuclear households. In general, storage zones were found to the west; those for refuse to the south; funerary areas were concentrated in the middle of the eastern sector (although exceptions exist); and neonatal burials were located primarily on a north-south band, in the eastern third of the compound. Thus the affinity for order so patently manifest in the grid system of the city is also reflected on the domestic level.

Burials are common in domestic contexts. However, with the exception of Tlajinga 33 and probably La Ventilla, the number of adults interred in each compound is too low, relative to the area of the compound, to account for all of its inhabitants. For example, seven burials are recorded for Xolalpan, thirteen for Tlamimilolpa, and eighteen for the compound at Oztoyahualco 15B:N6W3, which would indicate that other adults, particularly women, were perhaps buried elsewhere. Certain burials in each compound had very rich offerings. At Oztoyahualco, Burial 8 was exceptional, for it contained a male adult, twenty-two years of age, with an intentionally deformed skull in association with an impressive theatre-type incense burner (Manzanilla and Carreón 1991). In what seems to represent a funerary ritual, the incense burner appliqués were removed from the lid, and all were placed around the deceased. The chimney was deposited towards the west, with the lid and the figure to the east of the skull; representations of plants and sustenance (ears of corn, squash, squash flowers, cotton, *tamales, tortillas,* and perhaps amaranth bread) were placed to the south; the four-petalled flowers, roundels representing feathers, and mica disks to the east and west (see Fig. 6.7).

Although Oztoyahualco 15B:N6W3 only contained eighteen burials, fewer than found at Tlajinga 33 (Storey 1983, 1987, 1992) or La Ventilla 'B' (Serrano and Lagunas 1974), important conclusions may be reached regarding the data obtained from them. The first household, in the southeastern section, contained three burials; the second, in the western portion of the compound, also had three burials (all adults); the third, in the northeastern section, had eleven burials, of which six were of newborn babies and children (see Storey 1986). The over-representation of burials belonging to particular sectors of the apartment compounds is also noted for Xolalpan, where nearly all the burials are concentrated in the southwestern section, at Tlamimilolpa, where nearly all are grouped in the central-southern section, and at Tetitla, where they are concentrated in the northeastern section. It seems that there is one family that is well represented with respect to funerary practices, while all the rest seem to be under-represented.

At Oztoyahualco 15B:N6W3, each household had one or two burials that stood out in respect of their grave goods (Burial 8 for unit one, Burial 13 for unit two, and probably Burials 10 and 1 for unit three). Burial 8 was the most outstanding of the compound group as a whole.

Theatre-type censers were used profusely at Xolalpan (where they are found in the altar and in a western courtyard) and Tlamimilolpa (where they are grouped around Burial 4 and kept in caches, ready for ritual use). Decorated tripods are also common at Xolalpan and Tlamimilolpa, but very rare, though present, at Oztoyahualco. One difference lies in the presence of Maya fine wares in the western portion of Xolalpan and in the central part of Tlamimilolpa, perhaps because of their proximity to the Merchants' *Barrio*. Other imported wares, such as Thin Orange and Granular ware, are present in all compounds.

Exotic raw materials such as mica, slate, and marine shells were present in burials at Xolalpan, Tlamimilolpa, and Oztoyahualco; they differ in their quantity and in the proportion of Pacific versus Atlantic shell species.

The state level

We believe that Tlaloc, the god of thunder, rain, and fertility, was the state deity at Teotihuacan, and his idol probably stood on top of the Pyramid of the Sun, in his role as god of sustenance (Tonacatecuhtli). This pyramid may have represented the sacred mountain. Tlaloc's consort, a great goddess of running water, fertility, and sustenance, perhaps stood on top of the Pyramid of the Moon, and may have been related to the Cerro Gordo behind it, a sacred mountain. The Feathered Serpent was prominent in the second and third centuries AD, but around AD 250 its temple was destroyed and covered with another pyramid, while iconographical elements with the feathered serpent were replaced by feline representations. Power struggles (probably depicted in the Mythological Animals' Mural) may have provoked these changes.

From its beginnings, Teotihuacan was planned to be harmonious with the natural scenery. The main pyramids echo the profiles of the mountains to the north, south and west. Furthermore, the four sectors of the city in the horizontal dimension, the presence of an underworld, a terrestrial and a celestial domain in the vertical dimension, and the astronomical orientation following the heliacal setting of the Pleiades in the summer solstice, suggest that Teotihuacan was also planned as a reproduction of the cosmos.

A geophysical (Fig. 6.8), geological, palaeobiological, and archaeological programme was undertaken in 1987 to study a system of tunnels under the pre-Hispanic city of Teotihuacan. The system of tunnels was originally excavated by the Teotihuacans themselves to extract porous volcanic materials for the construction of the city. Subsequently, the system seems to have been used ritually, evoking perhaps the concept of an underworld, and particularly, the *Tlalocan,* Tlaloc's underworld (Arzate *et al.* 1990; Chávez *et al.* 1988, 1994; Manzanilla 1994a, 1994b; Manzanilla *et al.* 1989, 1994, 1996).

Caves had many functions and meanings for pre-Hispanic peoples. They could be shelters, living sites, ritual places associated with lineage and passage rites, solar observatories, quarries, dwelling places of the gods of water and death, mouth (or 'womb') of the earth, and underworld. Creation myths relate caves to the sun, the moon, food, and the emergence of human groups (Taube 1986). Caves are entrances to the underworld and, therefore, funerary chambers, but they also provide access to the womb of the earth, and are thus places where fertility rites take place. Furthermore, water petition ceremonies for good harvests take place in caves, where water spirits dwell (Weitlaner and Leonard 1959).

The Nahuas associated three concepts with the underworld: *Mictlan, Tlillan,* and *Tlalocan*. According to Anderson (1988:153–4), *Tlalocan was* depicted as a place of great wealth, where there was no suffering—where maize, squash, amaranth, chile, and flowers were abundant. In the Prayer to Tlaloc of the *Florentine Codex,* translated by Sullivan (1965:45), it is said that sustenance had not disappeared, but rather that the

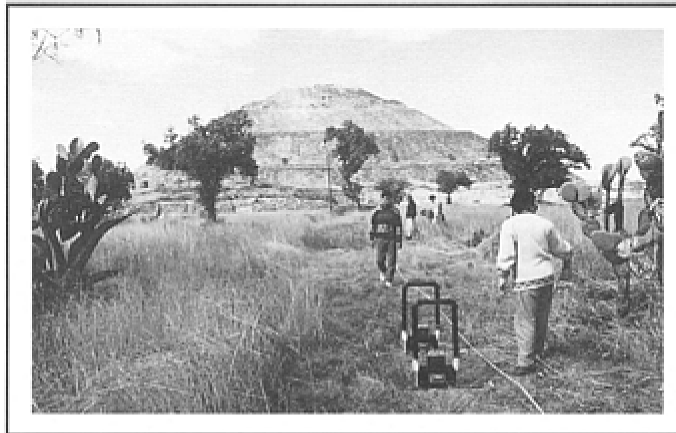


Figure 6.8 Use of Ekko IV ground penetrating radar kindly lent by the Faculty of Engineering of the National Autonomous University of Mexico by Dr René Chávez and Andrés Tejero.

gods had hidden it in *Tlalocan*. In several examples of *Náhuatl* poetry, *Tlalocan* is portrayed as a place of beauty, where birds with lovely feathers sang on top of pyramids of jade. It was also described as a construction consisting of four rooms around a patio, with four containers filled with water: one was good, but the other three were associated with frost, sterility and drought. It was further thought of as an underground space filled with water that connected the mountains with the sea; it was a place where rivers originated.

The existence of caves in Teotihuacan is well known. Heyden (1981) reproduces the glyph of Teotihuacan from the *Xólotl Codex* which represents the two large pyramids overlying a cave with a person inside. It is likely that this figure refers to the oracles that were frequently located within caves, as indicated in the *Relación de Teotihuacan* (Soruco Saenz 1985:107, 1992). In addition, toponyms such as Oztoyahualco and Oztotícpac refer to caves.

The general objective of our 1987–96 project on the underworld at Teotihuacan (Arzate *et al.* 1990; Chávez *et al.* 1988, 1994; Manzanilla 1994a, 1994b; Manzanilla *et al.* 1989, 1994, 1996) consisted of locating and defining tunnels and caves which were of interest to archaeology due to their potential ritual or economic use. The particular goals were to detect continuity of the tunnels throughout the northern part of the city, where the holes were not visible, and to locate primarycontexts that would assess the following functions: the original extractive activities related to porous pyroclastic materials; large-scale storage; burials; and offerings related to fertility rites. Four tunnels to the east of the Pyramid of the Sun were thoroughly investigated. The third tunnel (Cueva de las Varillas, Fig. 6.9) is 50 m in length, and has a vast entrance chamber, 18 m in diameter, with seven small niches and a tunnel that crosses three small chambers. To one side it is connected to another chamber that contained well-preserved funerary and storage contexts. There are hints of a cult that involved marine elements, such as different types of mother-of-pearl shells, a ray cauda, and fragments of marine turtle shells. Moreover, there were examples of foreign pottery from the Gulf Coast and the Mayan area.

The funerary chamber also had modern and Aztec domestic contexts. Underneath the Aztec floors (fourteenth and fifteenth centuries AD) there were funerary and storage contexts of Mazapa date (*c.* AD 930). Twelve Mazapa burials were found. A group of three seated adult burials facing south were excavated underneath a pillar left in the chamber (Fig. 6.10); two infant burials were placed near the adult burials at the level of their heads. All these burials had mainly complete and ritually broken pottery vessels as offerings, as well as some projectile points. The first group appears to have been placed in the northeastern

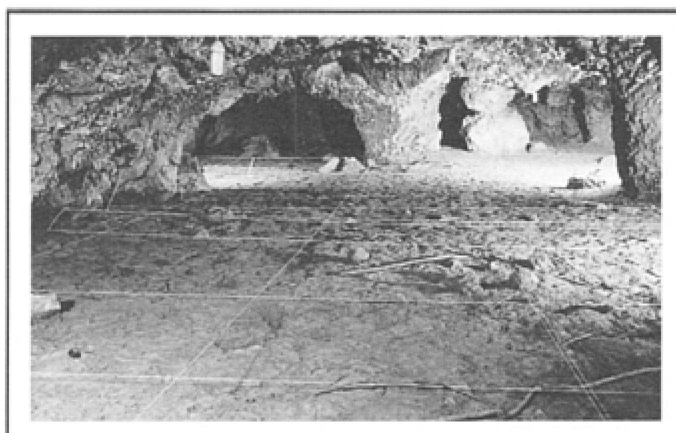


Figure 6.9 Cueva de las Varillas main chamber before exploration.

fringe of the chamber. Further on, under the floor of an altar just beneath a hole in the ceiling of the chamber, there were seven newborn babies, some of them in a sitting position, and some in foetal position. They were placed in an east-west alignment in the central part of the chamber. The newborn babies had only triangles or rectangles of cut mica as offerings, and some hearths contained Teotihuacan *candeleros* and projectile points (Manzanilla 1994a).

In this chamber seven circular storage bin bottoms were also found, distributed in different sectors and depths in the level corresponding to the adult burials (Manzanilla 1994a, 1994b; Manzanilla *et al.* 1996). The chamber produced evidence of three of the functions predicted by the project: storage areas associated with fertility rituals in the womb of the earth; burials as part of the underworld concept; and baby burials as part of the *Tlalocan* concept (the underworld of the god Tlaloc, god of thunder, rain and fertility).

The fourth tunnel (Cueva del Pirul) provided similar data, but belonging to the Coyotlatelco Phase (*c.* AD 600–700). In different chambers in the tunnel, near the entrance, fourteen burials were found: two seated adults (one with a bilobulated skull), two young adults in foetal positions, and sets of four and six child and perinatal burials. A group of six burials, mainly infants, was placed around a broken hemispherical monochrome bowl with plastic design, known as 'Jiménez Sealed Brown' (Cobean 1990:194–8). This type of bowl has been related by Cobean to the Coyotlatelco Sphere and to the Corral Complex. He suggests that they were used for drinking chocolate. Numerous examples of this type, with different kinds of sealed motifs, were found in the excavations. Near two of the children and one newborn baby, three complete and articulated dog skeletons were found: two adults and a puppy, one of them with skeletal malformations. They may have been conceived of as guides to the underworld (Fig 6.11). Modest storage bin bottoms were also found in the first chamber of this tunnel. In another sector, a newborn baby was placed inside a bowl near one of the seated adults and an eight-month-old baby in foetal position covered with a bowl (Manzanilla *et al.* 1996).

Following our 1987 project it was possible to verify that the system of tunnels and caves in the Teotihuacan Valley was originally a group of quarries dating to the Patlachique or Tzacualli periods for the extraction of porous volcanic materials, and were thus made by humans. We rectify, therefore, our previous idea, derived from Heyden (1975) and Millon (1973), that they were natural, because there is no natural phenomenon in volcanic contexts that can produce large or long holes, except solid lava tubes, and this is not the case. Furthermore, there are examples of 14C dates from the caves (Beta 69912), from the lower tunnel of the Pyramid of the Sun (M-1283; Millon *et al.* 1965:33) and the Temple of the Feathered Serpent



Figure 6.10 Female seated burial (Burial 2) in the funerary chamber of the Cueva de las Varillas.

(Rattray 1991:12) that give a date of *c.* AD 80. This could be evidence of a great construction enterprise involving the tunnels and the main pyramids at that time. Moreover, Barba (1995) and Manzanilla (1994a) have speculated that when the city was built the sense of sacredness seems to have been derived, firstly, from the fact that the construction material came from the subterranean world—in particular, the pyroclastic material chosen was the small red type, as if a sacred body were being built—and, secondly, from the fact that the use of fire and water for making stucco formed part of the consecration act.

The original settlement in the valley consisted of three-temple plazas conspicuously surrounded by dwelling sites, and a not very dense urban site as Millon (1973) originally proposed. The quarry mouths were located near these pyramid complexes, since a great deal of construction material was needed for the elevation of the pyramids themselves. When the plazas of these complexes were built, they seem to have been deliberately placed on top of the tunnels. Whether physical communication is possible between these tunnels and the plazas we do not yet know. Furthermore, Teotihuacan did not have the double-'T' or 'I' shaped constructions actually used as ball courts, so there is a possibility that the three-temple plazas, as well as the Street of the Dead (Fig. 6.13) and the huge plain behind the Pyramid of the Sun, could have been used for ball games, as well as for diverse economic transactions. If this were the case, the parallel with the Maya concept of the ball court as a portal of the underworld would be evident: all the northern half of the city would have had many entrances to the underworld.

Various rites may have been practised inside the tunnels. Brady and Stone (1986:19) proposed that the Naj Tunich cave in Guatemala could have been a burial place for members of Maya royalty. It is very probable that this is also true for many caves ritually used during the Classic Horizon in Central Mexico. As such, it is hypothesised that the main bureaucrats of the ancient city of Teotihuacan were buried in this underworld, the *Tlalocan,* or underworld of the state god. Many of the polished stone funerary masks that derive mainly from private collections, but also from pre-Hispanic looting, could have come from these burials. We have evidence that people with Coyotlatelco, Mazapan and Aztec ceramics dwelt in these caves

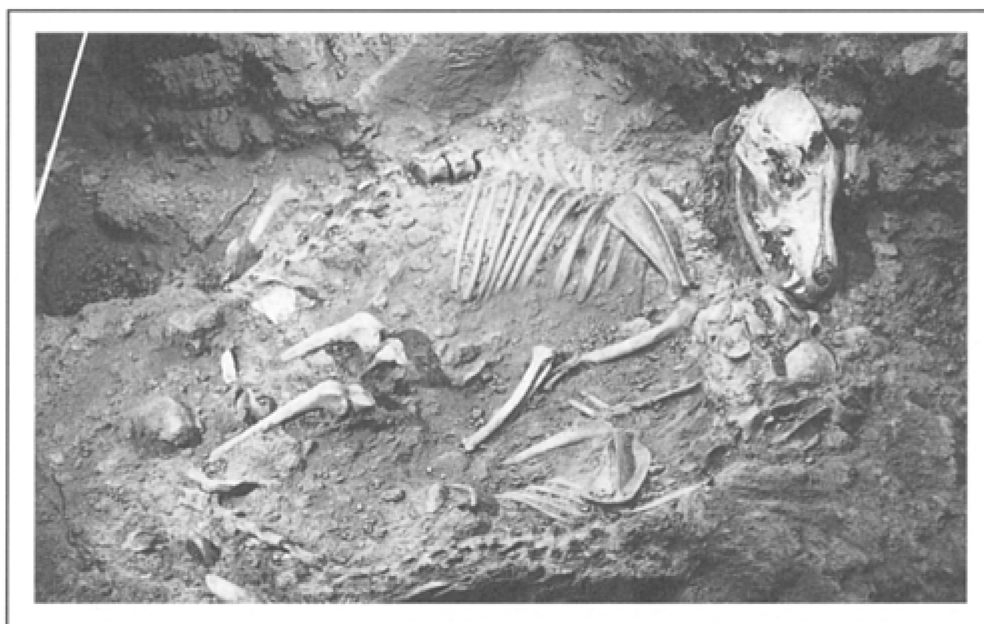


Figure 6.11 Two complete dog skeletons near two infant burials, as guides in the underworld, in the Cueva del Pirul.

and looted them. Fragments of human bones, fresco-painted ceramics, painted slate and other archaeological material have come from a mixed fill of more than 4 m that sealed many of the caves. As previously mentioned, this was material stacked inside the cave system either by the Coyotlatelco people (*c.* AD 680), or by the Teotihuacans themselves.

Furthermore, Epiclassic and Early Postclassic people constructed a shrine for the *tlaloques,* or Tlaloc assistants within the tunnels, represented by the seven babies deposited in the central part of the funerary chamber of the Cueva de las Varillas. They were found exactly underneath a hole in the cavity's roof which may have allowed rainwater to be poured on top of the shrine. The adult burials were seated with their backs to a pillar, which had been left in the chamber to prevent the collapse of the cavity, and facing south, as if they were guardians of the underworld.

Other rites practised inside the tunnels may have been related to fertility ceremonies in the womb of the earth. Armillas (Navarrete *pers. comm.*) mentioned that tons of storage vessel fragments were found when the La Gruta Restaurant was enlarged. Furthermore, in the Cueva de las Varillas thirteen storage bin bottoms were found, of which seven surrounded the burial area, while six were in an inner chamber, 50 m from the entrance, and therefore too far to be practical for economic use. They may thus have formed part of fertility propitiation rites.

The Pyramid of the Sun at Teotihuacan is the only structure not built with the porous volcanic material known as *tezontle,* which was excavated from the tunnels. Rather, it was constructed mainly of earth and fragments of tuff, 5–10 cm in size (Rattray 1974), that generally overlie the pyroclastic material.

In 1989 we interviewed old men and women regarding the caves at Teotihuacan. Various people mentioned the myth that in the old days, in February, a man could be seen coming from under the Pyramid of the Sun, carrying maize, amaranth, green beans, and zucchini. Many added that under the Pyramid of the

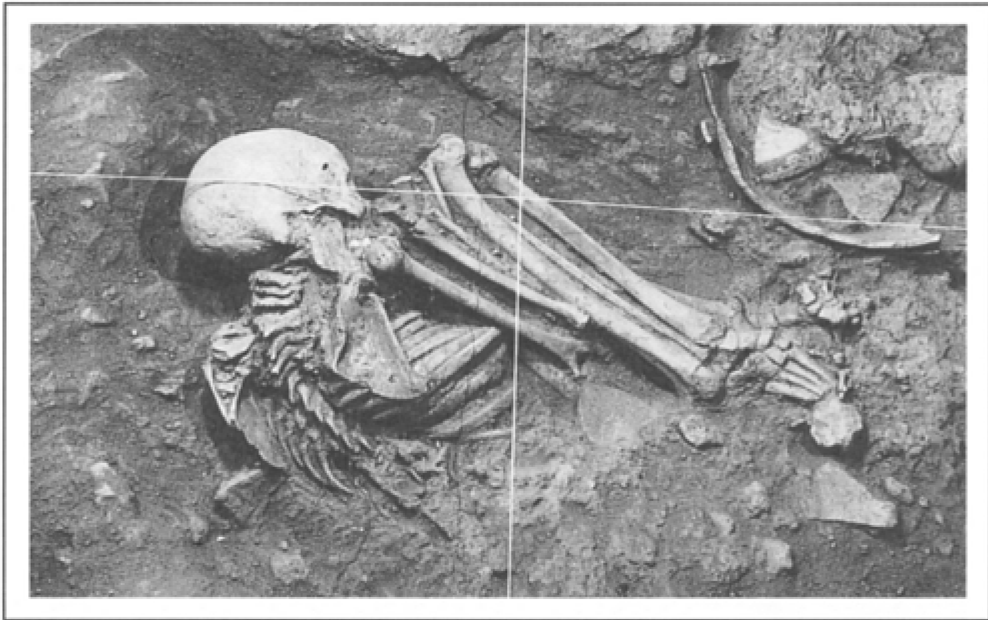


Figure 6.12 Burial 26 near a newborn baby burial inside a jar bottom in the Cueva del Pirul.

Sun there were *chinampa*-type fields (raised fields) where all this foodstuff was collected (registered interviews, *pers. comm.* to the author).

The concept of a mountain of sustenance—the *Tonacatépetl* of Nahua tradition—is widespread in Mesoamerica, as is the concept of a sacred mountain with a cave from which water emerges (Freidel *et al.* 1993:430). The excavations at Akapana (Manzanilla 1992c; Manzanilla and Woodard 1990), the main pyramid of Tiwanaku in the Bolivian highlands, have discovered the elements of a sacred mountain from where water poured through a complex system of hydraulics, as well as a synthesis of social and ritual duality. There are two staircases, two ritual buildings, and perhaps also two inhabitation constructions for the two main priesthoods of the site: one related to the puma, and the other to the condor. These summit constructions surround a sunken court, probably filled with water in the rainy season, from which different types of stone drainage canals enabled water to circulate inside and outside on the terraces, as pouring fountains (Manzanilla 1992c; Manzanilla and Woodard 1990). Following this evidence, it is proposed that the Pyramid of the Sun at Teotihuacan was conceived of as a *Tonacatépetl* or 'mountain of sustenance'. Such an interpretation is reinforced by the mention made by the *Relación de Teotihuacan* (Paso y Troncoso 1979:222) of the idol on the summit of the pyramid as being Tonacateuctli. Furthermore, the Pyramid of the Sun is the only construction built from organic soil from the alluvial plain, perhaps from the Acolman area. It may therefore have been the synthesis of three intimately related concepts: the *Tonacatépetl,* the main temple for the state god Tlaloc, and the sacred mountain, the centre of the universe represented as the centre of the four-petal flower, as López Austin (1989) has suggested.

The terrestrial plane of Teotihuacan is divided into the four quarters of the universe. It has a celestial plane, including the sky itself and the summits of the temples, but also an underworld represented by the system of tunnels under the northern half of the city. The main avenue of the city connected the natural sacred mountain of Cerro Gordo, where Tobriner (1972) detected a cave of special significance, to the



Figure 6.13 View of the Street of the Dead from the Plaza of the Moon.

Pyramid of the Sun (the artificial 'mountain of sustenance'), and the spring area to the south; the East-West Avenue probably traces the path of the Pleiades (Townsend 1993:41).

In a study of *Náhuat-speakmg* groups in the Sierra de Puebla region of Mexico, Knab (1991) described a myth that mentions the geography of the underworld, or *Talokan (Tlalocan),* as understood by the inhabitants of San Miguel Tzinacapan. In the myth, caves are considered to be entrances to the underworld: the mythical northern entrance, *Mictalli* or *Miquitalan,* is represented by a 'cave of the winds' and is the means of access to the world of the dead. Tobriner (1972) made reference to a gorge on the northeastern slope of Cerro Gordo in the northern fringe of the Teotihuacan Valley and a cave that emitted a sound of water. A map dating to AD 1580 depicts this gorge on the southeastern portion of the hill. Tobriner also suggested that the Street of the Dead in Teotihuacan was built pointing towards Cerro Gordo because of the association of this mountain with the God of Water (Tobriner 1972:113). The southern entrance in the myth is called *Atotonican* and is a place of warmth, a hot spring that produces vapour and clouds in the back of the cave. It is well known that the area of springs is situated in the southwestern sector of the valley, another parallel with respect to the myth. The mythical eastern access is called *Apan,* a large lake in the underworld that joins the sea. The lacustrine basin of Apan is located precisely to the east of the Teotihuacan Valley. The western entrance in the myth is a mountain called *Tonalan,* where the sun stops on its voyage. Mount Tonalan is actually a low mountain located in the northwestern boundary of the valley, between Cerro Gordo and Cerro Malinalco.

It is possible that the myth of *Náhuat-speakers* in the Sierra de Puebla is derived from a version based on the sacred geography of the Teotihuacan Valley, but it is equally probable that both have their source in an

archetypal Mesoamerican concept of the underworld. Thus the construction of sacred space is a tradition derived from Formative times, and culminated with the building of cities as models of the cosmos.

Teotihuacan may also have been the place where sacred time was created, as was recently proposed for the Temple of Quetzalcoatl (López Austin *et al.* 1991). Furthermore, Millon (1993: 23) suggests that the tunnel under the Pyramid of the Sun 'came to be seen as the focus of a creation myth in which it was portrayed as the place where the present era began, where humankind came into being, and where the present cycle of time was born.'

As such, Teotihuacan society was united mainly through religion. The concept of the four courses of sacred space also permeated the domestic domain of Teotihuacan (Manzanilla 1993). Religion was represented in three levels: state religion, district or *barrio* gods, and lineage deities. Teotihuacan was thus the archetype of the Mesoamerican civilised city, the most sacred realm, and the mythical *Tollan* where crafts flourished. It inaugurated the settlement pattern of the region into a new era, an era that has not yet ended.

ACKNOWLEDGEMENTS

I thank the following people for their participation in particular studies in the domestic archaeology project: Luis Barba and Agustín Ortiz for the geophysical and geochemical prospection, as well as for the chemical studies; Raúl Valadez for the palaeofaunal analysis; Neusa Hidalgo, Javier González, and Emily McClung de Tapia for the palaeobotanical data; Beatriz Ludlow and Emilio Ibarra for the pollen information; Judith Zurita for the phytolith analysis; Magalí Civera and Mario Millones for the osteological analyses; Cynthia Hernández for the lithic analyses; Miguel Angel Jiménez for the ceramic distribution maps; Edith Ortiz for the domestic ideology research; and the Graphic Department of the Institute of Anthropological Research of the National Autonomous University of Mexico for their invaluable help. This interdisciplinary research project on domestic life was funded by the Institute of Anthropological Research of the National Autonomous University of Mexico (UNAM).

With respect to the study of tunnels and caves, I thank the following people for their participation in particular studies: AnnCorinne Freter from Ohio University, for the obsidian hydration dates; Luis Barba and Agustín Ortiz for the geophysical and geochemical prospection; Claudia Trejo for the chemical studies; Raúl Valadez for the palaeofaunal analysis; Emily McClung de Tapia, Diana Martínez, Rebeca Rodríguez, and Cristina Adriano for the palaeobotanical data; Emilio Ibarra, Ruth Castañeda and Oanna del Castillo, for the pollen information; Conception Herreva and Gabriela Silva for the phytolith analysis; Beatriz Maldonado and Marcela Zapata for the lithic analyses; Claudia López and Claudia Nicolás for the ceramic distributional maps; Claudia López for the ceramic study; Rocío Arrellín for the osteological analysis; T.Douglas Price and William H.Middleton, from the University of Wisconsin-Madison, for the strontium isotope study; Edith Ortiz for the haemoglobin study; Rocío Vargas for the fossil DNA study; Edith Ortiz, Cynthia Hernández, Miguel Angel Jiménez, Mauricio Garduño, Rocío Arrellín, Claudia López, Marcela Zapata, Beatriz Maldonado, Rossana Enríquez, and Alfredo Feria for assistance in the exploration of the tunnels; and the Graphic Department of the Institute of Anthropological Research of the National Autonomous University of Mexico for their invaluable help.

This research was funded by the Institute of Anthropological Research and by Grant DGAPA-UNAM IN214694 of the National Autonomous University of Mexico (UNAM); by Grants n. P218CC00892832, H9106–0060, and 400358–5–5412–S of the National Council of Science and Technology of Mexico (CONACYT), and by Grant FAMSI n. 95007 of the Foundation for the Advancement of Mesoamerican Studies, Inc., and it was undertaken with permission of the Archaeological Council of the National Institute

of Anthropology and History (INAH). The geophysical work was also partially supported by an internal grant, IGF–02–9102.

I would also like to thank doctors Zoltán de Cserna and Gerardo Sánchez Rubio of the Institute of Geology; José Lugo Hubp of the Institute of Geography; Jaime Urrutia and Dante Morán of the Institute of Geophysics, National Autonomous University of Mexico, for their advice and suggestions at different stages of the geological research at Teotihuacan. We also thank the students of the Engineering Faculty of the University and of the National School of Anthropology and History for their participation. The radiocarbon dates were obtained from Beta Analytic, Inc.

REFERENCES

Acosta, J. (1964) *El palacio del Quetzalpapálotl,* Mexico: INAH (Memorias del INAH X).

Anderson, A.J.O. (1988) 'A look into Tlalocan', in J.K.Josserand and K.Dakin (eds) *Smoke and Mist. Mesoamerican Studies in Memory of Thelma D.Sullivan,* Oxford: British Archaeological Reports (BAR International Series 4021). 151–9.

Angulo Villaseñor, J. (1964) 'Teotihuacan. Un autorretrato cultural', unpublished Master's dissertation, Escuela Nacional de Antropología e Historia, Mexico.

Armillas, P. (1944) 'Exploraciones recientes en Teotihuacan, Mexico', *Cuadernos Americanos* 16, 4:121–36.

Arzate, J.A., Flores, L., Chávez, R.E., Barba, L. and Manzanilla, L. (1990) 'Magnetic prospecting for tunnels and caves in Teotihuacan, Mexico', in S.H.Ward (ed.) *Geotechnical and Environmental Geophysics,* vol. III, Tulsa: Society for Exploration Geophysicists. 155–62.

Barba, L.A. (1986) 'La química en el estudio de areas de actividad', in L.Manzanilla (ed.) *Unidades Habitacionales Mesoamericanas y sus áreas de Actividad,* Mexico: UNAM (Arqueología: Serie Antropológica 76). 21–39.

—— (1995) 'Impacto humano sobre la paleogeografía de Teotihuacan', unpublished doctoral dissertation, Facultad de Filosofía y Letras de la UNAM, Mexico.

Barba, L.A. and Manzanilla, L. (1987) 'Superficie/excavación. Un ensayo de predicción de rasgos arqueológicos desde la superficie, en Oztoyahualco', *Antropológicas* 1:19–46.

Barba, L.A., Ludlow, B., Manzanilla, L. and Valadez, R. (1987) 'La vida doméstica en Teotihuacan. Un estudio interdisciplinario', *Ciencia y desarrollo* 77, año 13:21–32.

Barba, L.A., Manzanilla, L., Chávez, R., Flores, L. and Arzate, A.J. (1990) 'Caves and tunnels at Teotihuacan, Mexico: a geological phenomenon of archaeological interest', in N.P.Lasca and J.Donahue (eds) *Centennial Special,* 4, *Archaeological Geology of North America,* Boulder: Geological Society of America. 431–8.

Barbour, W. (1993) 'Host figurines', in K.Berrin and E.Pasztory (eds) *Teotihuacan. Art from the City of the Gods,* San Francisco: The Fine Arts Museums of San Francisco and Thames and Hudson. 210.

Batres, L. (1906) *Teotihuacan o la Ciudad Sagrada de los Tolteca,* Mexico: Imprenta de Hull.

Bernal, I. (1963) *Teotihuacan. Informes de Exploraciones,* Mexico: INAH.

Brady, J.E. and Stone, A. (1986) 'Naj Tunich: entrance to the Maya underworld', *Archaeology* 39, 6:18–25.

Cabrera Castro, R. and Cabrera, O. (1991) 'El proyecto Templo de Quetzalcoatl. Planteamientos generales y resultados preliminares', *Arqueología* 6:19–31.

Cabrera Castro, R., Rodríguez García, I. and Morelos García, N. (1982a) *Teotihuacan 80–82, Primeros Resultados,* Mexico: INAH.

—— (1982b) *Memoria del Proyecto Arqueológico Teotihuacán 80–82,* Mexico: INAH (Colección Científica, Serie Arqueológica 132).

Cabrera Castro, R., Cowgill, G.L. and Sugiyama, S. (1990) 'El proyecto Templo de Quetzalcóatl y la práctica a gran escala del sacrificio humano', in A.Cardós de Méndez (ed.) *La Epoca Clásica: Nuevos Hallazgos, Nuevas Ideas,* Mexico: INAH. 123–46.

Cabrera Castro, R., Rodríguez García, I. and Morelos García, N. (1991) *Teotihuacan 1980–1982. Nuevas Interpretaciones,* Mexico: INAH (Colección Científica 227).

Chadwick, R.E.L. (1966) 'The "Olmeca-Xicallanca" of Teotihuacan: a preliminary study', *Mesoamerican Notes* 7 and 8:1–24.

Charlton, T.H. (1969) 'Sociocultural implications of House Types in the Teotihuacan valley, Mexico', *Journal of the Society of Architectural Historians* 28, 4:284–90.

Chávez, R., Arzate, J., Flores, L., Manzanilla, L. and Barba, L. (1988) *Estudio Geofísico de las Cuevas y Túneles de Teotihuacan,* Mexico: Instituto de Geofísica, UNAM (Informes técnicos, Serie Investigación 78).

Chávez, R.E., Manzanilla, L., Peralta, N., Tejero, A., Cifuentes, A. and Barba, L. (1994) 'Estudio magnético y de resistividad en los alrededores de la Pirámide del Sol, Teotihuacan, Mexico', *Geofísica Internacional* 33, 2: 243–55.

Cobean, R.H. (1990) *La Cerámica de Tula, Hidalgo,* Mexico: INAH (Colección Científica 215).

Cobean, R.H. and Mastache, A.G. (1989) 'The Late Classic and Early Postclassic chronology of the Tula Region', in D.M.Healan (ed.) *Tula of the Toltecs: Excavations and Survey,* Iowa City: University of Iowa Press. 34–46.

Cook de Leonard, C. (1957a) 'Proyecto del CIAM en Teotihuacan', *Boletín del Centro de Investigaciones Antropológicas de Mexico (CIAM)* 1, 4:1–2.

—— (1957b) 'Excavaciones en la Plaza no. 1, "Tres Palos", Ostoyohualco, Teotihuacan (Informe preliminar)', *Boletín del CIAM* 1, 4:3–5.

Córdova F.de A., Carlos, A., Martin del Pozzo, L. and López Camacho, J. (1994) 'Paleolandforms and volcanic impact on the environment of prehistoric Cuicuilco, southern Mexico City', *Journal of Archaeological Science* 21: 585–96.

Cowgill, G.L. (1983) 'Rulership and the Ciudadela. Political inferences from Teotihuacan architecture', in R.M.Leventhal and A.L.Kolata (eds) *Civilization in the Ancient Americas. Essays in Honor of Gordon R.Willey,* Cambridge, Mass. and Albuquerque: Peabody Museum and University of New Mexico Press. 313–43.

—— (1987) 'Métodos para el estudio de relaciones espaciales en los datos de la superficie de Teotihuacan', in E.McClung de Tapia and E.Childs Rattray (eds), *Teotihuacan. Nuevos Datos, Nuevas Síntesis y Nuevos Problemas,* Mexico: UNAM. 161–89.

—— (1992) 'Toward a political history of Teotihuacan', in A.A.Demarest and G.W.Conrad (eds) *Ideology and Pre-Columbian Civilizations,* Santa Fe: School of American Research Advanced Seminar Series. 87–114.

Crespo Oviedo, A.M., and Mastache de Escobar, A.G. (1981) 'La presencia en el area de Tula, Hidalgo, de grupos relacionados con el Barrio de Oaxaca en Teotihuacan', in E.C.Rattray, J.Litvak, and C.Díaz O. (eds) *Interacción Cultural en Mexico Central,* Mexico: UNAM. 99–104.

Díaz O., C.L. (1980) *Chingú: Un Sitio Clásico del Área de Tula, Hgo.,* Mexico: INAH (Colección Científica 90).

Freidel, D., Schele, L. and Parker, J. (1993) *Maya Cosmos. Three Thousand Years on the Shaman's Path,* New York: William Morrow.

Gamio, M. (1920) 'Ultimos descubrimientos arqueológicos en Teotihuacan', *Ethnos* 1, 1:7–14.

—— (1922) *La Población del Valle de Teotihuacan,* Mexico: Secretaría de Agricultura y Fomento.

García, E. (1974) 'Situaciones climáticas durante el auge y la caída de la cultura teotihuacana', *Boletín del Instituto de Geografía* 5:35–69.

García Cook, A. (1981) 'The historical importance of Tlaxcala in the cultural development of the central highlands', in J.A.Sabloff (ed.) *Supplement to the Handbook of Middle American Indians, Archaeology* I, Austin: University of Texas Press. 244–76.

García Payón, J. (1974) 'Centro de Veracruz', in *Historia de Mexico,* Volume 2, 23. Mexico City: Salvat Editores. 141–58.

González, J. (1993) 'Estudio del material arqueobotánico de Oztoyahualco. Macrofósiles botánicos, fitolitos y polen', in L. Manzanilla (ed.) *Anatomía de un Conjunto Residencial Teotihuacano en Oztoyahualco* 2, Mexico: UNAM. 661–73.

González Quintero, L. and Sánchez Sánchez, J.E. (1991) 'Sobre la existencia de chinampas, el manejo del recurso agrícola-hidráulico', in R.Cabrera Castro, I.Rodríguez García and N.Morelos García (eds) *Teotihuacan 1980–1982. Nuevas Interpretaciones,* Mexico: INAH (Serie Arqueología 227). 345–75.

Hartung, H. (1979) 'El ordenamiento espacial en los conjuntos arquitectónicos mesoamericanos: el ejemplo de Teotihuacan', *Comunicaciones* 16:89–103.

Hernández, C. (1993) 'La lítica', in L.Manzanilla (ed.) *Anatomía de un Conjunto Residencial Teotihuacano en Oztoyahualco* 1, Mexico: UNAM. 388–467.

Heyden, D. (1975) 'An interpretation of the cave underneath the Pyramid of the Sun in Teotihuacan, Mexico', *American Antiquity* 40, 2:131–47.

—— (1981) 'Caves, gods, and myths', in E.P.Benson (ed.) *World Views and Planning in Teotihuacan,* Washington DC: Dumbarton Oaks. 1–39.

Hirth, K.G. (1978) 'Teotihuacan regional population administration in eastern Morelos', *World Archaeology* 9, 3: 320–33.

Holmes, W.H. (1897) *Ruins of the Valley of Mexico. San Juan Teotihuacan. Archeological Studies among the Ancient Cities of Mexico,* Chicago: Field Columbian Museum (Publication 16, Anthropological Series, 1, 21:289–98).

Jiménez Moreno, W. (1959) 'Síntesis de la historia pretolteca de Mesoamérica', in C.Cook de Leonard (ed.) *Esplendor del Mexico Antiguo,* II, Mexico: Centro de Investigaciones Antropológicas de Mexico. 1019–108.

Kirchhoff, P. (1968) 'Der heutige Stand des Mexiko-Projectes', *Zum 38. Internationalen Amerikanisten-Kongress in Deutschland,* Umschau, Band 68, Heft 17:517–23.

Knab, T.J. (1991) 'Geografía del inframundo', *Estudios de Cultura Náhuatl* 21:31–57.

Kolb, C.C. (1995) 'Teotihuacan period figurines: a typological classification, their spatial and temporal distribution in the Teotihuacan Valley', in W.T.Sanders (ed.) *The Teotihuacan Valley Project. Final Report,* vol. 3, *The Teotihuacan Occupation of the Valley,* part 2, *Artifact Analyses,* University Park: The Pennsylvania State University (Occasional Papers in Anthropology 20). 275–465.

Krotser, P. and Rattray, E. (1980) 'Manufactura y distribución de tres grupos cerámicos de Teotihuacan', *Anales de Antropología* 17:91–104.

Kubler, G. (1967) *The Iconography of the Art of Teotihuacan,* Studies in Pre-Columbian Art and Archaeology 4, Washington DC: Dumbarton Oaks.

Linné, S. (1934) *Archaeological Researches at Teotihuacan, Mexico,* Stockholm: Ethnographical Museum of Sweden.

—— (1942) *Mexican Highland Cultures. Archaeological Researches at Teotihuacan, Calpulalpan and Chalchicomula in 1934–35,* Stockholm: Ethnographical Museum of Sweden (New Series, Publication 7).

López Austin, A. (1989) 'La historia de Teotihuacan', in *Teotihuacan,* Mexico: El Equilibrista, Citicorp/ Citibank.

López Austin, A., López Luján, A. and Sugiyama, S. (1991) 'The Temple of Quetzalcoatl at Teotihuacan. Its possible ideological significance', *Ancient Mesoamerica* 2:93–105.

López de Molina, D. (1986) Arqueología de superficie y estudios urbanos. El caso de Cantona', *Revista Mexicana de Estudios Antropológicos* 32:177–85.

Manrique Castañeda, L. (1975) 'Relaciones entre las areas lingüísticas y las areas culturales', *XIII Mesa Redonda, Antropología Física, Lingüística y Codices,* Mexico: Sociedad Mexicana de Antropología. 137–60

Manzanilla, L. (1985) 'El sitio de Cuanalan en el marco de las comunidades pre-urbanas del Valle de Teotihuacan', in J.Monjarás-Ruiz, E.Pérez Rocha and R.Brambila (eds) *Mesoamérica y el Centro de Mexico,* Mexico: INAH. 133–78.

—— (1986a) 'lntroducción', in L.Manzanilla (ed.) *Unidades Habitacionales Mesoamericanas y sus áreas de Actividad,* Mexico: UNAM (Arqueología, Serie Antropológica 76). 9–18.

—— (1986b) *La Constitución de la Sociedad Urbana en Mesopotamia. Un Proceso en la Historia,* Mexico: UNAM (Serie Antropológica 80).

—— (1988) 'La arqueología sobre los períodos preclásico superior y clásico en la Cuenca de Mexico', in C.García Mora (ed.) *La Antropología en Mexico. Panorama Histórico 14. La Antropología en el Centro de Mexico,* Mexico: INAH. 81–104.

—— (1988–89) 'The study of room function in a residential compound at Teotihuacan, Mexico', *Origini, Giornate in Onore di Salvatore Maria Puglisi* 14:175–86.

—— (1992a) 'The economic organization of the Teotihuacan priesthood: hypotheses and considerations', in J.C.Berlo (ed.) *Art, Ideology, and the City of Teotihuacan,* Washington DC: Dumbarton Oaks. 321–38.

—— (1992b) '¿Y si el desastre comenzó en Teotihuacan?', *Antropológicas* 3:9–11.
—— (1992c) *Akapana. Una Pirámide en el Centro del Mundo,* Mexico: Instituto de Investigaciones Antropológicas, UNAM.
—— (1993) *Anatomía de un Conjunto Residencial Teotihuacano en Oztoyahualco,* Mexico: Instituto de Investigaciones Antropológicas, UNAM.
—— (1994a) 'Geografía sagrada e inframundo en Teotihuacan', *Antropológicas* 11, July: 53–65.
—— (1994b) 'Las cuevas en el mundo mesoamericano', *Ciencias* 36:59–66.
—— (1996) 'Corporate groups and domestic activities at Teotihuacan', *Latin American Antiquity* 7, 3: 1–19.
Manzanilla, L. and Barba, L. (1990) 'The study of activities in classic households. Two case studies from Coba and Teotihuacan', *Ancient Mesoamerica* 1, 1:41–9.
Manzanilla, L. and Carreón, E. (1991) 'A Teotihuacan censer in a residential context. An interpretation', *Ancient Mesoamerica* 2, 2:299–307.
Manzanilla, L., and Ortiz, A. (1991) 'Los altares domésticos en Teotihuacan. Hallazgo de dos fragmentos de maqueta', *Cuadernos de Arquitectura Mesoamericana* 13:11–13.
Manzanilla, L. and Woodard, E. (1990) 'Restos humanos asociados a la Pirámide de Akapana (Tiwanaku, Bolivia)', *Latin American Antiquity* 1, 2:133–49.
Manzanilla, L., López, C. and Freter, A. (1996) 'Dating results from excavations in quarry tunnels behind the Pyramid of the Sun at Teotihuacan', *Ancient Mesoamerica* 7, 2:245–66.
Manzanilla, L., Barba, L., Chávez, R., Arzate, J. and Flores, L. (1989) 'El inframundo de Teotihuacan. Geofísica y arqueología', *Ciencia y desarrollo* 15, 85:21–35.
Manzanilla, L., Barba, L., Chávez, R., Tejero, A., Cifuentes, G. and Peralta, N. (1994) 'Caves and geophysics: an approximation to the underworld of Teotihuacan, Mexico', *Archaeometry* 36, 1:141–57.
Manzanilla, L, Ortiz, A., Hernández, C, Jiménez, M.A., Ortiz, E. and Cortina, M. (1990) 'Nuevos procedimientos para el análisis de areas de actividad en arqueología', *Antropológicas* 5:13–27.
McClung de Tapia, E. (1978) 'Aspectos ecológicos del desarrollo y la decadencia de Teotihuacan', *Anales de Antropología* 15:53–65.
—— (1979) *Plants and Subsistence in the Teotihuacan Valley AD 100–750,* unpublished doctoral dissertation, Brandeis University, Ann Arbor, University Microfilms.
—— (1980) 'Interpretación de restos botánicos procedentes de sitios arqueológicos', *Anales de Antropología* 17: 149–65.
Metcalfe, S.E., Street-Perrott, F.A., Brown, R.B., Hales, P.E., Perrot, R.A. and Steininger, F.M. (1989) 'Late Holocene human impact on lake basins in central Mexico', *Geoarchaeology* 4, 2:119–41.
Miller, A. (1973) *The Mural Painting of Teotihuacan,* Washington DC: Dumbarton Oaks.
Millon, C. (1973) 'Painting, writing, and polity in Teotihuacan', *American Antiquity* 38, 3:294–314.
Millon, R. (1967) 'Teotihuacan', *Scientific American* 216, 6:38–48.
—— (1968) 'Urbanization at Teotihuacan: the Teotihuacan Mapping Project', *Actas y Memorias del 37 Congreso Internacional de Americanistas,* Buenos Aires: Departamento de Publicaciones Científicas Argentinas. 105–20.
—— (1970) 'Teotihuacan: completion of map of giant city in the Valley of Mexico', *Science* 170, 4 December: 1077–82.
—— (1973) *Urbanization at Teotihuacán, Mexico,* I, 1, *The Teotihuacan Map,* Part One: *Text,* Austin: University of Texas Press.
—— (1981) 'Teotihuacan: city, state and civilization', in V.Bricker and J.A.Sabloff (eds) *Handbook of Middle American Indians,* supplement I, *Archaeology,* Austin: University of Texas Press. 198–243.
—— (1988) 'The last years of Teotihuacan dominance', in N.Yoffee and G.L.Cowgill (eds) *The Collapse of Ancient States and Civilizations,* Tucson: The University of Arizona Press. 102–64.
—— (1993) 'The place where time began. An archaeologist's interpretation of what happened in Teotihuacan history', in K.Berrin and E.Pasztory (eds) *Teotihuacan. Art from the City of the Gods,* San Francisco: The Fine Arts Museums of San Francisco and Thames and Hudson. 16–43.

Millon, R., Drewitt, R.B. and Bennyhoff, J.A. (1965) *The Pyramid of the Sun at Teotihuacán: 1959 Investigations,* Philadelphia: The American Philosophical Society (Transactions 55).

Millon, R., Drewitt, R.B. and Cowgill, G.L. (1973) *Urbanization at Teotihuacán, Mexico,* I, 1, *The Teotihuacan Map,* Part Two: *Maps* , Austin: University of Texas Press.

Millones, M. (1994) 'Paleoparentesco en la Ciudad de los Dioses. Los entierros de Oztoyahualco', unpublished thesis in physical anthropology, Escuela Nacional de Antropología e Historia, Mexico.

Monzón, M. (1989) *Casas prehispánicas en Teotihuacan,* Toluca: Instituto Mexiquense de Cultura.

Moore, F.W. (1966) 'An excavation at Tetitla, Teotihuacan', *Mesoamerican Notes* 1 and 8:69–85.

Mooser, F. (1968) 'Geología, naturaleza y desarrollo del Valle de Teotihuacan', in J.L.Lorenzo (ed.) *Materiales para la Arqueología de Teotihuacan,* Mexico: INAH (Serie Investigaciones 17). 29–37.

Múnera, C. (1985) 'Un taller de cerámica ritual en la Ciudadela', unpublished undergraduate dissertation, Escuela Nacional de Antropología e Historia, Mexico.

Noguera, E., and Leonard, J. (1957) 'Descubrimientos de la Casa de las Aguilas', *Boletín del Centro de Investigaciones Antropológicas de Mexico* 1, 4:6–9.

O'Hara, S.L., Street-Perrott, F.A. and Burt, T.P. (1993) 'Accelerated soil erosion around a Mexican highland lake caused by prehispanic agriculture', *Nature* 362:48–51.

Ortiz Butrón, A. (1990) 'Oztoyahualco: estudio químico de los pisos estucados de un conjunto residencial teotihuacano para determinar areas de actividad', unpublished doctoral dissertation in archaeology, Escuela Nacional de Antropología e Historia, Mexico.

Ortiz Butrón, A. and Barba, L. (1993) 'La química en los estudios de areas de actividad', in L.Manzanilla (ed.) *Anatomía de un Conjunto Residencial Teotihuacano en Oztoyahualco* 2, Mexico: UNAM. 617–60.

Palerm, A. and Wolf, E. (1972) *Agricultura y Civilización en Mesoamérica,* Mexico: Secretaría de Educación Pública (Sepsetentas 32).

Paso y Troncoso, F. del (1979) *Papeles de Nueva España.* Segunda Serie: *Geografía y Estadística, Relaciones Geográficas de la Diócesis de Mexico,* Mexico: Editorial Cosmos.

Pasztory, E. (1978) 'Artistic traditions of the Middle Classic Period', in E.Pasztory (ed.) *Middle Classic Mesoamerica: AD 400–700,* New York: Columbia University Press. 108–42.

Paulinyi, Z. (1981) 'Capitals in pre-Aztec central Mexico', *Acta Orientalia Academiae Scientiarum Hungaricae* 2 and 3: 315–50.

—— (1995) 'El pájaro del Dios Mariposa de Teotihuacan: análisis iconográfico a partir de una vasija de Tiquisate, Guatemala', *Boletín del Museo Chileno de Arte Precolombino* 6:71–110.

Piña Chan, R. (1963) 'Excavaciones en el Rancho "La Ventilla"', in I.Bernal (ed.) *Teotihuacan,* Mexico: INAH. 50–2.

Rattray, E.C. (1974) 'Some clarifications on the early Teotihuacan ceramic sequence', paper presented at the *41st International Congress of Americanists,* Mexico: 364–8.

—— (1987) 'Los barrios foráneos de Teotihuacan', in E.McClung de Tapia and E.Childs Rattray (eds) *Teotihuacan. Nuevos Datos, Nuevas Síntesis y Nuevos Problemas,* Mexico: UNAM.

—— (1988) 'Nuevas interpretaciones en torno al Barrio de los Comerciantes', *Anales de Antropología* 25: 165–82.

—— (1991) 'Fechamientos por radiocarbono en Teotihuacan', *Arqueología* 6:3–18.

—— (1993) *The Oaxaca Barrio at Teotihuacan,* Cholula: Instituto de Estudios Avanzados, Universidad de las Américas-Puebla (Monografías Mesoamericanas 1).

Saenz, C. (1975) 'Xochicalco, Morelos', in E.Matos Moctezuma *et al*. (eds) *Los Pueblos y Señoríos Teocráticos. El Período de las Ciudades Urbanas,* Primera parte, *Mexico, panorama histórico y cultura,* VII, Mexico: SEP—INAH: 55–102.

Sánchez Alaniz, J.I. (1989) 'Las Unidades Habitacionales en Teotihuacan: El Caso de Bidasoa', unpublished doctoral dissertation in archaeology, Escuela Nacional de Antropología e Historia, Mexico.

Sanders, W.T. (1964) 'The central Mexico symbiotic region: a study in prehistoric settlement patterns', in G.R. Willey (ed.) *Prehistoric Settlement Patterns in the New World,* New York: Johnson Reprint Co., Viking Fund (Publications in Anthropology 23). 115–27.

—— (1966) ‘Life in a classic village’, in *Teotihuacan. Onceava Mesa Redonda,* Mexico: Sociedad Mexicana de Antropología. 123–47.
—— (1968a) ‘A profile of urban evolution in the Teotihuacan Valley’, *Actas y Memorias del XXXVII Congreso Internacional de Americanistas,* Buenos Aires: Departamento de Publicaciones Científicas Argentinas. 95–103.
—— (1968b) ‘Hydraulic agriculture, economic symbiosis, and the evolution of the state in Central Mexico’, in B.Meggers (ed.) *Anthropological Archaeology in the Americas,* Brooklyn: The Anthropological Society of Washington. 88–107.
—— (1970) *The Teotihuacan Valley Project. Final Report 1, The Natural Environment, Contemporary Occupation and 16th Century Population of the Valley,* University Park: Pennsylvania State University (Occasional Papers in Anthropology 3).
—— (1977) ‘Resource utilization and political evolution in the Teotihuacan Valley’, in J.N.Hill (ed.) *Explanation of Prehistoric Change,* Albuquerque: University of New Mexico Press. 231–57.
—— (1986) *The Teotihuacan Valley Project. Final Report* 4. *The Toltec Period Occupation of the Valley.* Part 1. *Excavations and Ceramics,* University Park: The Pennsylvania State University (Occasional Papers in Anthropology 13).
—— (1987) *The Teotihuacan Valley Project. Final Report* 4. *The Toltec Period Occupation of the Valley.* Part 2. *Surface Survey and Special Studies,* University Park: The Pennsylvania State University (Occasional Papers in Anthropology 15).
—— (1994) *The Teotihuacan Valley Project. Final Report,* vol. 3. *The Teotihuacan Occupation of the Valley.* Part 1. *The Excavations,* University Park: The Pennsylvania State University (Occasional Papers in Anthropology 19).
—— (1995) *The Teotihuacan Valley Project. Final Report,* vol. 3. *The Teotihuacan Occupation of the Valley.* Part 2. *Artifact Analyses,* University Park: The Pennsylvania State University (Occasional Papers in Anthropology 20).
Sanders, W.T., Parsons, J.R. and Santley, R.S. (1979) *The Basin of Mexico. Ecological Processes in the Evolution of a Civilization,* New York: Academic Press.
Schávelzon, D. (1983) ‘La primera excavación arqueológica de America: Teotihuacan en 1675’, *Anales de Antropología* 20, 1:121–34.
Séjourné, L. (1966) *Arquitectura y Pintura en Teotihuacán,* Mexico: Siglo XXI.
Sempowski, M.L. (1994) ‘Mortuary practices at Teotihuacan’, in M.L.Sempowski and M.W.Spence (eds) *Mortuary Practices and Skeletal Remains at Teotihuacan, Urbanization at Teotihuacan, Mexico 3* , Salt Lake City: University of Utah Press. 1–314.
Serrano, C. and Lagunas, Z. (1974) ‘Sistema de enterramiento y notas sobre el material osteológico de La Ventilla, Teotihuacan, Mexico’, *Anales del Instituto Nacional de Antropología e Historia* 7a: 105–44.
Serrano Sánchez, C., Pimienta Merlín, M. and Gallardo Velázquez, A. (1991) ‘Los entierros del Templo de Quetzalcóatl. Patron de distribución por edad y sexo’, *Arqueología* 6:53–67.
Sidrys, R. (1977) ‘Mass-distance measures of the Maya obsidian trade’, in T.K.Earle and J.E.Ericson (eds) *Exchange Systems in Prehistory,* New York: Academic Press. 91–107.
Sload, R. (1987) ‘The great compound: a forum for regional activities’, in E.McClung de Tapia and E. Childs Rattray (eds) *Teotihuacan. Nuevos Datos, Nuevas Síntesis y Nuevos Problemas,* Mexico: UNAM. 219–41.
Soruco Saenz, E. (1985) ‘Una cueva ceremonial en Teotihuacan’, unpublished doctoral thesis, Escuela Nacional de Antropología e Historia, Mexico.
—— (1992) ‘Una cueva astronómica en Teotihuacan y sus implicaciones astronómicas religiosas’, in J. Broda, S.Iwaniszewski and L.Maupomé (eds) *Arqueoastronomía y Etnoastronomía en Mesoamérica,* Mexico: Instituto de Investigaciones Históricas, UNAM.
Spence, M. (1966) ‘Los talleres de obsidiana de Teotihuacan’, in *XI Mesa Redonda: Teotihuacan. El Valle de Teotihuacan y su Entorno,* Mexico: Sociedad Mexicana de Antropología. 213–18.
—— (1987) ‘The scale and structure of obsidian production in Teotihuacan’, in E.McClung de Tapia and E.Childs Rattray (eds) *Teotihuacan. Nuevos Datos, Nuevas Síntesis y Nuevos Problemas,* Mexico: UNAM. 429–50.
—— (1989) ‘Excavaciones recientes en Tlailotlacan, el barrio Oaxaqueño de Teotihuacan’, *Arqueología* 5: 81–104.

—— (1992) 'A comparative analysis of ethnic enclaves', paper presented at the 57th Annual Meeting of the Society for American Archaeology in Pittsburgh, April 8–12.

—— (1994) 'Human skeletal material from Teotihuacan', in M.L.Sempowski and M.W.Spence (eds) *Mortuary Practices and Skeletal Remains at Teotihuacan, Urbanization at Teotihuacan, Mexico 3,* Salt Lake City: University of Utah Press. 315–453.

—— (n.d.) 'Commodity or symbol: the role of Teotihuacan obsidian in the Maya region', manuscript, University of Western Ontario, London, Ont.

Starbuck, D. (1975) 'Man-animal relationships in pre-Columbian central Mexico', unpublished doctoral dissertation, Department of Anthropology, Yale University.

Storey, R. (1983) 'The paleodemography of Tlajinga 33. An apartment compound of the pre-Columbian city of Teotihuacan', unpublished doctoral dissertation, The Pennsylvania State University, University Park, Ann Arbor, University Microfilms International.

—— (1986) 'Perinatal mortality at pre-Columbian Teotihuacan', *American Journal of Physical Anthropology* 69: 541–8.

—— (1987) 'A first look at the paleodemography of the ancient city of Teotihuacan', in E.McClung de Tapia and E.C.Rattray (eds) *Teotihuacan. Nuevos Datos, Nuevas Síntesis y Nuevos Problemas,* Mexico: UNAM (Arqueología, Serie Antropológica 72). 91–114.

—— (1991) 'Residential compound organization and the evolution of the Teotihuacan state', *Ancient Mesoamerica* 2, 1: 107–18.

—— (1992) *Life and Death in the Ancient City of Teotihuacan. A Modern Paleodemographic Synthesis,* Tuscaloosa: The University of Alabama Press.

Storey, R. and Widmer, R.J. (1989) 'Household and community structure of a Teotihuacan apartment compound: S3W1: 33 of the Tlajinga Barrio', in S.MacEachern, D.J.W.Archer and R.D.Garvin (eds) *Households and Communities,* Calgary: The Archaeological Association of the University of Calgary. 407–15.

Sugiyama, S. (1989) 'Burials dedicated to the Old Temple of Quetzalcoatl at Teotihuacan, Mexico', *American Antiquity* 54, 1:85–106.

Sullivan, T.D. (1965) 'A prayer to Tlaloc', *Estudios de Cultura Náhuatl* 5:39–55.

Taube, K.A. (1986) 'The Teotihuacan cave of origin: the iconography and architecture of emergencemythology in Mesoamerica and the American Southwest', *RES* 12, Autumn: 51–82.

Tobriner, S. (1972) 'The fertile mountain: an investigation of Cerro Gordo's importance to the town plan and iconography of Teotihuacan', in *Teotihuacan. XI Mesa Redonda,* Mexico: Sociedad Mexicana de Antropología. 103–15.

Townsend, R.F. (1993) 'Paisaje y símbolo', in R.F.Townsend (ed.) *La Antigua America. El Arte de los Parajes Sagrados,* Mexico: Grupo Azabache, The Art Institute of Chicago. 29–47.

Uruñuela y Ladrón de Guevara, G. and Plunket Nagoda, P. (1995) *Proyecto Tetimpa. Informe Técnico al Consejo de Arqueología. Primera Temporada (Noviembre 1993–Julio 1994),* Cholula: Universidad de las Américas (Technical Report for INAH).

Valadez, R. and Manzanilla, L. (1988) 'Restos faunísticos y areas de actividad en una unidad habitacional de la antigua ciudad de Teotihuacan', *Revista Mexicana de Estudios Antropológicos* 343, 1:147–68.

Valadez Azúa, R. (1993) 'Macrofósiles faunísticos', in L.Manzanilla (ed.) *Anatomía de un Conjunto Residencial Teotihuacano en Oztoyahualco* 2,Mexico: UNAM. 729–825.

Weitlaner, R. and Leonard, J. (1959) 'De la cueva al palacio', in *Esplendor del Mexico Antiguo,* Mexico: Centro de Investigaciones Antropológicas de Mexico. 933–56.

Widmer, R.J. (1987) 'The evolution of form and function in a Teotihuacan apartment compound: the case of Tlajinga 33', in E.McClung de Tapia and E.C.Rattray (eds) *Teotihuacan. Nuevos Datos, Nuevas Síntesis y Nuevos Problemas,* Mexico: UNAM. 317–68.

—— (1991) 'Lapidary craft specialization at Teotihuacan: implications for community structure at 33: S3W1 and economic organization in the city', *Ancient Mesoamerica* 2, 1:131–47.

Winter, M. (1989) *Oaxaca. The Archaeological Record,* Mexico City: Editorial Minutiae Mexicana.

Chapter Seven
The domestication of Andean camelids

Duccio Bonavia

Even though it would appear to be easy to define a domestic animal, it is in fact extremely complicated, and it is even more difficult to establish the moment from which one is in the presence of an animal that can really be defined as domestic. After all, one must not forget that one is dealing with a process and not an event. We can suppose that the process begins when humans realise that it is easier to keep animals close to the place where they will be used, than to have to hunt them with all the difficulties which that involves. This process has various stages, and the difficulty lies in establishing in which of these the animal is no longer wild but rather has become domesticated. Furthermore, for the process of domestication to be viable, certain behavioural characteristics should exist on the part of the animals, such as tameness and docility, which enable them to accept the presence of humans. In other words, not all animals can be domesticated.

Domestication signifies a modification of the original human-animal relationship: from predation one passes to a symbiotic relationship. With this, humans initiate a process of artificial selection which with time leads to genetic changes in the animals involved. Such genetic changes generally produce structural modifications which facilitate the work of archaeologists by allowing them to differentiate between the bones of wild and domestic animals (see Bökönyi 1969 for analysis). This, however, is not the case with the camelids, as will be shown later.

There are other types of evidence which permit archaeologists to make inferences about domestication, such as the age distribution of the animals and the relationship between sexes, which are different in captive and wild populations, and the absence and presence of certain parts of the skeleton in archaeological refuse, as well as other evidence which there is no reason to mention here.

As Scossiroli (1984:210) has indicated, the history of the domestication of the various animal species, and even of the same species, is different from place to place and is dependent on environmental conditions which, in turn, influence the behavioural characteristics of the human populations who carry out the process.

In spite of all these difficulties, we agree with Thévenin (1961:7) that a definition of a domestic animal is one that after having been bred from generation to generation under the control of humans, has evolved in such a way as to constitute a species, or at least a race (we prefer to say a variety), different to the wild primitive form from which it originated.

The process of domestication of animals in South America is little known and archaeozoology is a relatively recent discipline, so much evidence has been lost. On the other hand, one must take into account that the hunter-gatherers who initially populated this continent did not find many animals with the potential for domestication in the Andean area (Figs 7.1 and 7.2). There is agreement amongst specialists that these first hunter-gatherers brought with them from Asia the dog *(Canis familiaris)* in a domestic state. Remains of dogs more than 5,000 years old have been found in the Peruvian Sierra Central. However, one must admit that the history of the dog in South America remains unknown.

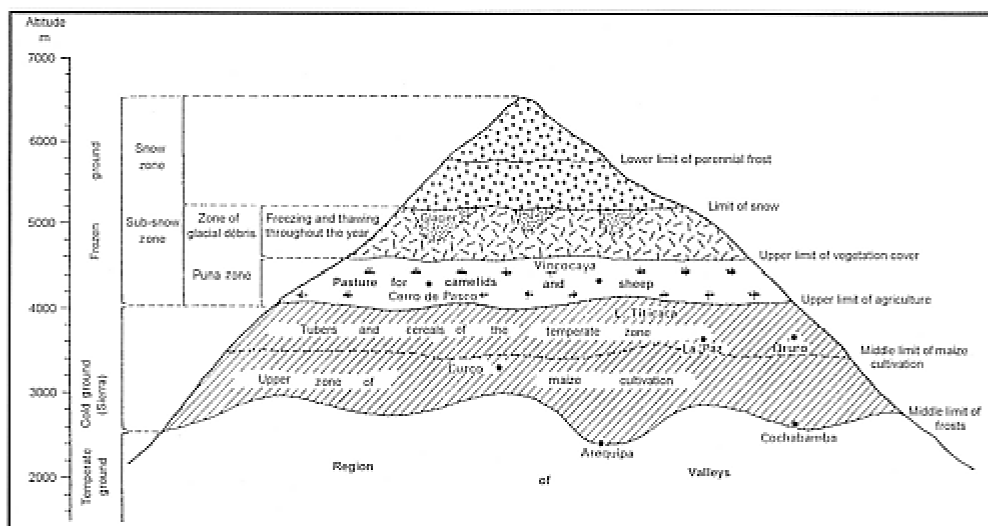


Figure 7.1 Climatic-ecological schema of the southern Andes of Peru and northern Bolivia (after Bonavia 1991, adapted from Troll 1968).

The other animal that was domesticated in the Andean area is the guinea pig *(Cavia spp.)* which has been, and continues to be, an important source of food for indigenous peoples. Nonetheless, its history is also unknown to us. The archaeological evidence appears to indicate that its domestication must have taken place between 3500 and 2500 BC. However, remains of guinea pigs, probably wild, have been found in the area of Ayacucho, Peruvian Sierra Central, which are of an antiquity of *c.* 7000 BC.

The only domestic bird which is known in South America is the muscovy duck *(Cairina moschata),* also known as the royal duck, creole duck, or the *machacón* duck. It is known in both wild and domestic states, lives from sea-level to 300 m above sea-level, and is widely geographically dispersed, from Central America to Paraguay in the east and Peru in the west. Even though one suspects that it was domesticated in Peru, there are no archaeological data to support such a view.

The only mammals with potential for domestication that existed in the Andes were the camelids, and these animals played a decisive role in the development of Andean civilisations. Apart from being a fundamental source of food with their meat, they provided the indigenous peoples with wool of an extremely high quality. Their dung played an important role, not only as a fertiliser, but also as a fuel, especially in the cold puna where it is very difficult to obtain firewood. Above all, llamas (Fig. 7.3) were extremely important as beasts of burden, since they were unique in fulfilling this function in America. They accompanied the Inca armies, and without their participation the imperial war campaigns would probably not have had such success. They continued to play a fundamental role in colonial times, for they were not only employed by the Spanish armies during the Conquista, but they also transported precious minerals from the highland mines to the ships that took them to Europe. Furthermore, one must not forget the importance of the camelids in the system of beliefs of the Andean peoples.

The problem of the domestication of Andean camelids has been speculated upon for a long time. However, it has only been since the 1970s that, due to the contribution of archaeology and archaeozoology, concrete data have been obtained and it has been possible to glimpse a solution to the problem. Nonetheless, one must admit that the road to understanding is still long, and there are many problems yet to be solved.

Figure 7.2 Vertical distribution of climates with regular appearance of frost in the equatorial and tropical Andes, in relation to the upper limits of agriculture and the region of perpetual snow (after Bonavia 1991 adapted from Troll 1968).

The domestication of camelids has been viewed from different perspectives and areas of specialisation: geographers (e.g. Troll 1931, 1935), zoologists (e.g. Gilmore 1950; Hemmer 1975; Herre 1952; Krumbiegel 1944; Steinbacher 1953), as well as geneticists (e.g. Capurro *et al.* 1960), veterinarians (e.g. León 1939; Vallenas 1970) and palaeontologists (e.g. López Aranguren 1930; Cabrera 1932) have all been interested in the problem. Furthermore, a number of archaeologists (e.g. Bird 1954; Rick 1980) and ethnohistorians (e.g. Murra 1965) have become involved in the debate (for a detailed analysis of this problem, see Bonavia 1996).

There is no doubt whatsoever that the most important contribution, and the basis upon which the different aspects of the domestication of Andean camelids are currently established, is that made by the teams of Danièle Lavallée and John Rick, even though their points of view differ, as is discussed below. Lavallée and Rick's work was carried out in Junín, in the Sierra Central of Peru (Fig. 7.4). Although there is valuable material from other areas, none are as important as these. This data formed the basis of the technical studies of Wing and Wheeler and, from the 1980s onwards, the work of Franklin, Miller and Kent.

Elizabeth Wing has written a truism which could almost be considered a premise for entry into these studies. She wrote that 'Evidence of animal domestication in the Andes are primarily changes in patterns of animal use rather than anatomical changes in the animals themselves' (Wing 1980:163). Through studying the material from Cueva del Guitarrero (Lynch 1980), Chavín de Huántar (Burger 1984; Miller 1984) and Kotosh (Izumi and Sono 1963) (Fig. 7.4), Elizabeth Wing (1980) has arrived at the conclusion that in the area of Callejón de Huaylas the domestication of camelids must have occurred between 4000 and 3000 BC.

Nonetheless, it is insisted upon here that the majority of faunal remains of significance correspond to the area of Junín and essentially come from the excavations completed in Telarmachay rock shelter (Lavallée *et al.* 1985) (Fig. 7.5) and from the cave at Pachamachay (Rick 1980, 1983) (Fig. 7.4). It is on the basis of this material that the two models, to which we refer below, have been elaborated. However, at this point it is important to make clear that whilst at Telarmachay rock shelter a systematic and exhaustive study has been



Figure 7.3 A llama in the puna (photograph by Wilfredo Loayza).

completed, the same cannot be said of the work from Pachamachay. Consequently, the model elaborated from the material from the latter is more theoretical rather than based on empirical data. Furthermore, it must be said that, even though the quantity of faunal material studied from Telarmachay is significant (137, 985 fragments, see Fig. 7.6), there remains a large quantity of bones to be analysed (399,800 fragments). As a consequence, there exists the possibility that when the analysis has been completed some results may yet be modified (see Wheeler 1985b:63).

Telarmachay is significant because it has been possible to prove continuous occupation, with small gaps, from almost 7000 to 1800 BC. Between 7000 and 5200 BC the principal activity of the human occupants of the shelter was hunting the ungulates of the puna. From 5200 to 4000 BC, there was a move to specialised hunting, with emphasis on the exploitation of two animals: the guanaco and vicuña. Between 4000 and 3500 BC the first domestication occurred, which developed into pastoral activity from 3500 BC onwards (Wheeler 1984:405).

The large number of foetal and/or neonatal animals amongst the remains led Wheeler to believe that domestication had occurred between 4000 and 3500 BC. She is of the opinion that such an important slaughter or massacre of newborn animals is not economical, as many of the parts of the animal that the hunters utilise and which form the basis of their economy are not yet usable. For example, the meat, wool, large hide, tendons, the excrement and the larger bones are all unusable. Wheeler does not dismiss the possibility that some massacre sites could yet be discovered, and that young animals or pregnant females could have been slaughtered, but at Telarmachay there is evidence that suggests that other factors were also involved. Wheeler states that there is evidence that amongst wild camelid populations the mortality rate of newborns is relatively low (Raedeke 1979; Franklin 1978), whilst in populations of domesticated animals, and in this case specifically amongst llamas and alpacas, the mortality rate for young animals is very high (Fernández

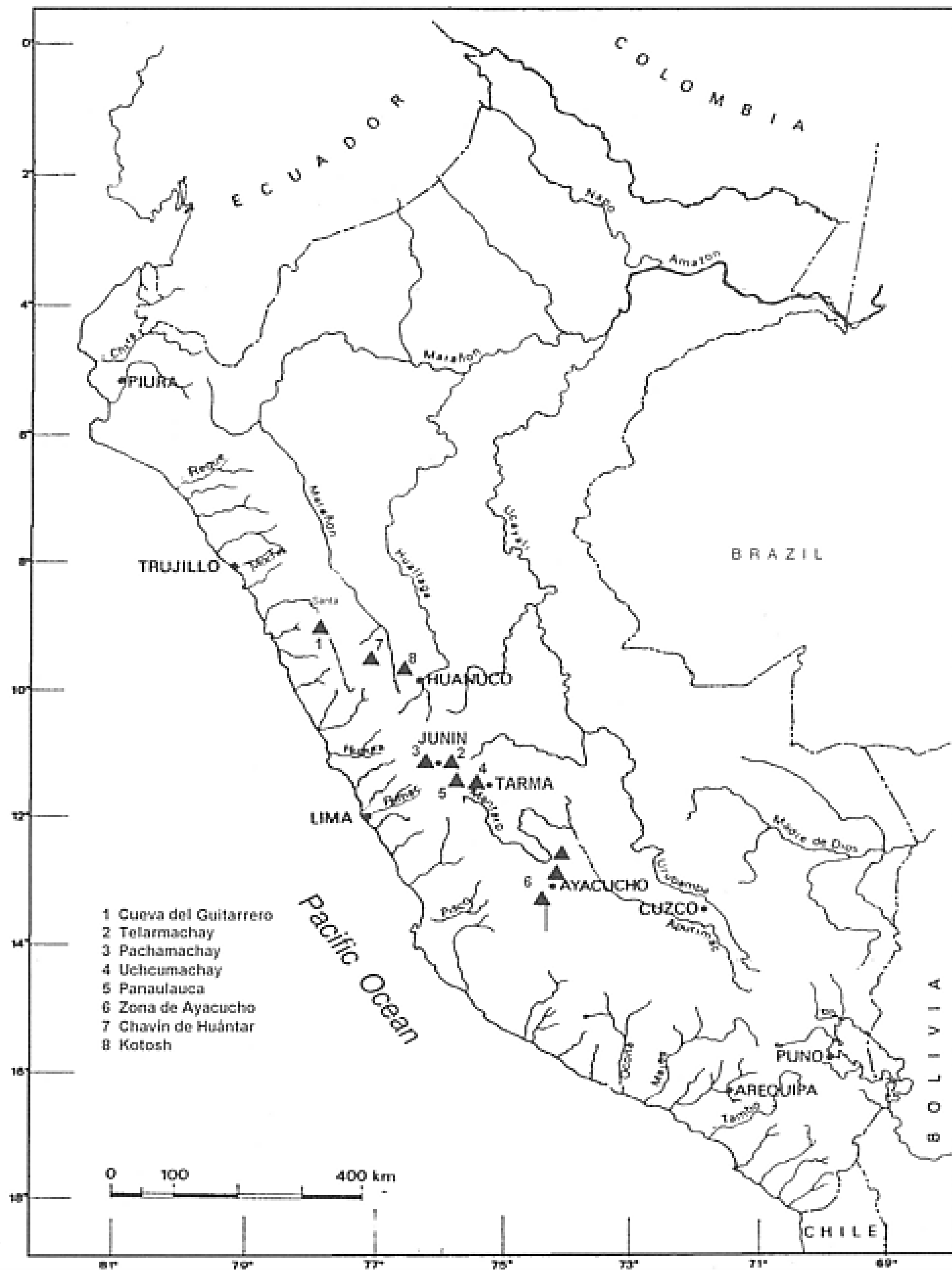


Figure 7.4 Map of the Central Andes showing the main sites discussed in the text.

Baca 1971). Such studies have revealed that the most important cause of death is a diarrhoea known as enterotoxaemia, caused by the bacterias *Clostridium perfringens,* types A and C, which have an epidemic



Figure 7.5 View of the area of Telarmachay in the Parpacocha puna. The location of the rock shelter (4,420 m above sea-level) is indicated by the arrow (photograph by Danièle Lavallée).

natural state. This disease is caused by the rapid growth of these pathogenic germs in corrals which are dirty and full of excrement, which is where the animals are usually kept. The studies to date have demonstrated that in the Andes this disease attacks newborn animals almost exclusively and is prevalent in the rainy season between December and the end of April. Wheeler believes that this disease is a consequence of domestication; in other words, it

emerged as soon as animals began to be kept in the unhygienic conditions characteristic of corrals (Wheeler 1984:403; 1985b:71–2; Novoa and Wheeler 1984:124).

A factor which hinders investigation is that it is notoriously difficult to identify the known species of camelids on the basis of their faunal characteristics. Nonetheless, Wheeler (1985b:78) has proposed that it is possible to identify different species by particular dental characteristics. In the earliest levels at Telarmachay there are many incisors characteristic of guanacos and vicuñas, but due to the passing of time the vicuña type always appears more abundant. In later levels a third type of incisor characteristic of modern alpacas appears and gradually becomes more common in the later contexts. As a consequence, Wheeler maintains that the first animal to be domesticated was the alpaca.

As a result of the above evidence Wheeler does not consider that the Altiplano was the area of domestication of these animals, as had been previously maintained (e.g. Latcham 1922), with dates as late as 2500 BP, but rather that domestication occurred in the Sierra Central at approximately 6000 BP. She admits the possibility that the vicuña played an important role in the process of domestication, given that evolutionary studies show that small camelids with vicuña-type incisors predominated over small camelids



Figure 7.6 Detail of the excavations of Level VI of Telarmachay (*c.* 7200–6800 BP) that shows the density of faunal remains: more than a thousand fragments per m^2 with variable thickness of 10–24 cm. Of the bone remains from this level, 77.84 per cent are from camelids (photograph by Danièle Lavallée).

with alpaca-type incisors. Vicuña incisors have characteristics intermediate between those of llamas, guanacos and alpacas. Their similarity to the small camelids with vicuña-type incisors is reinforced by two characteristics: by the localisation of tooth enamel, and by the late generation of their roots. Furthermore, these characteristics are dominant in the llama-vicuña hybrid. Nonetheless, Wheeler (1985b:78) states that even though there are many indications that the alpaca is a domesticated vicuña, there remains a series of questions to be resolved in order for this hypothesis to be proved.

It is interesting to note that Wheeler's hypothesis, which is based on data taken from osteological material from Telarmachay, and referred to as the early domestication of alpaca and its growth, has certain similarities with the ideas of Wing (1977a:852). Wing wrote that the predominance of a small form in the north of Peru as far south as Tarma, and the predominance of a larger type in the south as far north as Ayacucho, suggests an earlier development of a small race in the northernmost region of the Peruvian Andes. Wing's conclusions are interesting because they are based on the osteological analysis of eleven archaeological sites.

Lavallée *et al.* (1985) proposed that the site of Telarmachay, situated in the middle of the puna at more than 4,000 m above sea-level, was only a base camp for a group or groups of people who lived in the adjacent valley below, and which served basically to supply them with meat. The animals were taken to the shelter where the meat was carved and prepared. Amongst the most important reasons which have led to

such a position being taken by these researchers are the low density of lithic artifacts and the evidence of slaughtering and meat preparation.

Obviously it is impossible to determine exactly the motives which lead humans to decide to domesticate animals. At least it would be difficult for archaeology to be able to find proof of such a process. Perhaps this is one of the issues over which we have speculated too much, and have forgotten that in the same way as the domestication of plants, we are faced with a process and not an event. As such, the conscious will, as much as the subconscious, has played a fundamental role in the continuous interaction of humans with animals; it would be speculation to attempt to establish the importance played by each.

Lavallée (1978:38) is of the opinion that the systematic slaughter of animals could have created a series of disequilibriums in their natural state up to the point where the stability of the herds was endangered. The continuous slaughter could produce disequilibriums in the mechanisms of reproduction of a species and, with time, produce a population decline. There is no doubt that this could induce humans to create ever better mechanisms of control over the species that were economically of most interest to them.

However, in the specific case of the camelids, there are at least two more factors which played an extremely important role in the process of domestication. The first factor is the sense of territoriality of all the camelids, although in this case we are obviously referring to the wild members of the species. This would enable a group of hunters who could establish their camp in the vicinity of a herd to learn the herd's customs and understand their socio-ecological mechanisms, etc.; in other words, to interpenetrate the behaviour of these animals. The second factor is the reduction in size of the herds produced by the continuous slaughter. It is known that when one is dealing with small populations not only does natural selection take place, but genetic drift also starts to play an important role in the evolutionary development of the population. Genetic drift is an accidental change that occurs in the genetic composition of small populations, which at a particular moment can result in an accidental divergence from the original genetic make-up of the species. One must bear in mind that the differences between populations and species which occur through genetic drift are not necessarily adaptive or maladaptive; they can effectively be neutral changes (see Futuyama 1979:25–6). This could have led to forms that were less useful to the hunters who would have realised, empirically, that it was necessary to encourage the crosses that were most useful to them, and the necessity of isolating such crosses from the rest of the group. If this process were successful it would have signified the beginning of domestication.

Rick (1980:329) provides little information that could be used to clarify this process. His attempt to correlate types of artifacts with the process of domestication of animals appears to be highly speculative, as does the supposition that this process began late, in approximately 2200 BC. Furthermore, he has stated (Rick 1980:334) that he would not be surprised if the actual breeding of camelids and their total domestication and control was a late development in the puna. The reasons that Rick gives to maintain this position are as follows. Firstly, he considers that there is no reason to believe that the pre-domesticated forms of the llama came from the puna. In the puna, according to Rick, animals such as the vicuña can be managed in the wild with less expenditure of energy than that spent in pastoralising and with the same food resource security. Secondly, Rick maintains that there is very little evidence to suggest that early domesticated camelids were used for transport, which would suggest that these animals were superior to the others. However, the data from the puna indicate that in preceramic times there was little necessity for interregional exchange, which, according to Rick, would have reduced the importance of the domestic animal. When domestication was introduced to the puna, a change in the way of life was also introduced. What Rick (1980:265, *et passim*) finally proposes is a model based on three propositions that he maintains must be dealt with separately, but which are interrelated and together form the essence of the settlement pattern strategy of society.

Firstly, Rick states that the vicuña is, in modern times, the most productive and stable resource to be found in the puna. Furthermore, it is an easily accessible, non-seasonal resource, a situation which Rick considers to have been much the same in earlier times. Secondly, given that access to the vicuña-like camelids and other puna resources is year-round, human groups did not need to leave the residential zone at any time of the year. Thirdly, as a consequence of the behaviour and density of population of the vicuña the human population would have become sedentary, living almost the entire year in a base camp and utilising the surrounding territories.

To begin with there are two weak points in Rick's hypothesis. One is that he starts, in the case of the vicuña, with a present-day situation and presumes that this was the case in the past, which is far from certain. The actual distribution of Andean camelids has been tremendously modified by a series of factors that began to take effect from the moment of the Spaniards' arrival. The two most important and dramatic of these factors were indiscriminate slaughter, above all during the first years of the Conquista, and later the introduction of European animals, especially sheep. All this has pushed the camelids into what could be called 'refuge zones', which is where they are found today. The second point is that Rick himself has written: 'The hypothesis of year-round occupation of the Junín puna *cannot be conclusively proven with the evidence at hand,* although a wide range of seasons is indicated in the floral and faunal remains' (Rick 1980: 270, my emphasis). Whatever the situation was, Rick's thesis is in open contradiction with that of the team directed by Lavallée (Wheeler 1984:405).

There exists an unedited and practically unknown thesis, written by Spunticchia (1989–90) in which an alternative solution to those of Rick and Lavallée's team is proposed. Fundamentally, Spunticchia (1989–90: 161–4) appears to be in agreement with Lavallée *et al.* (1985), indicating that the hypothesis of the existence of base camps in the valley is the most likely, although adding that from a theoretical point of view it is difficult to exclude a mobility model that would permit the periodic utilisation of other base camps within the puna ecosystem. It is important to note that Spunticchia does not discuss the methodological aspects of Rick's work, which represent another facet of the problem and which, without a doubt, leave much to be desired. Spunticchia is very specific in this sense, for he writes *ad litteram:* 'prescindono dagli aspetti metodologici' [disregarding the methodological aspects]' (Spunticchia 1989–90: 165). Nonetheless, if the data were proved correct, Spunticchia (1989–90:164–6) thinks they would support his position. In effect he states that in preceramic times the puna presented a group of micro-environments, some complementary and others not. Of these there is at least one, the marshlands, which possesses a series of attractive characteristics for bands of hunters, and not only because of its high animal potential, but also for its plant resources (Spunticchia 1989–90:167–8). This second characteristic is important as the plant resource aspect of the life of hunter groups has been underestimated, if not simply ignored. This is due in part to the difficulty of obtaining evidence in this respect, and not only in high, wet environments. We are convinced that the plant diet was an important part of the sustenance of hunter-gatherer groups and was justifiably that which initiated the first selection of useful plants for humans. Without this argument there would be no way to explain the early dates for plant domestication in contexts which are still those of hunter-gatherers. This is the case, for example, with the domestic bean *(Phaseolus vulgaris),* which in the Cueva del Guitarrero has an antiquity of 8500 BC (Smith 1980a:81–2, 1980b:110–15).

However, returning to the main theme of this chapter, Spunticchia (1989–90:168) proposes that, given the relative proximity of the sites of Pachamachay and Telarmachay—they are separated by only approximately 35 km—it is possible to consider the following working hypothesis. Firstly, if one looks at the issue from a synchronic view, the hunter-gatherer or pastoral-horticulturist groups utilised diverse settlement models, related to the geographical positions of sites inside the ecosystem, and the quantity and type of micro-environments which were close by, whether complementary or not, which gave them the opportunity of

assuring a balanced diet. Secondly, and from a diachronic view, the settlement models could have been subject to variations as a consequence of better adaptation by human groups to the environment—in other words, due to greater technological understanding.

Further on Spunticchia points out, in what is referred to as the first hypothesis, that the sites of Telarmachay, Uchcumachay, Panaulauca, etc. (Fig. 7.4), are all situated on the fringes of the puna, in relative proximity to the valleys. Presumably the valleys were a much more attractive prospect to all these groups than the punas, given that these camps could have been the upper limit of a territory controlled by those groups that had their base camps in the valleys. Spunticchia considers that there could have been many reasons for maintaining this type of settlement. Firstly, there was the possibility of a balanced diet of animal and plant products; in such a scenario the valleys would provide the former and the puna the latter resource. Secondly, it was necessary to maintain control over several ecological niches, which would enable the groups to have access to these resources throughout the year. This could also facilitate relations with the groups that lived in the heights and who had control of another type of resource. It is important to note that Spunticchia is convinced that in such a scenario possible conflicts between groups would not involve the camelid populations as they are accessible in various environments.

It is evident that in those camps that were situated in the interior of the puna one determining factor in choosing the type of site would have been the presence within the territory of different resources, whether animal or plant. For this reason Spunticchia believes that in the sites situated in the puna the sedentary model could best resolve the cost-benefit relationship. Other models would have resulted in an unjustifiable expenditure of energy for human groups. He gives an example of one group established in the interior of the puna. For this group a model of transhumance orientated towards the valleys would signify an enormous expenditure of effort, not only because of the distances involved, but also because of the great difference in altitude. Further difficulties would involve having to adapt oneself culturally to a new environment, and the possibility of conflict and confrontation with other human groups.

With respect to the second hypothesis, Spunticchia departs from the premise that the human groups that arrived at the punas of Junín required a certain length of time in order to adapt, be it from a physical or cultural point of view. Only after having persevered for this time period did some groups settle in areas where greater subsistence gains were available.

If one looks at the problem from a diachronic point of view, it is possible to see that the valleys exercised a strong attraction for human groups, above all for possible horticultural development and the possibility of utilising species of plants from a warmer climate. This could have been the motivation behind looking for base camps on lower ground. From this time on the puna would remain the environment for the rearing of camelids by pastoralists from the valley. It is possible that these pastoralists had to adopt a form of nomadism due to the necessity of grazing their animals (Spunticchia 1989–90:167–75).

In synthesis, Spunticchia suggests that based on camelid behaviour and the environment of the Junín puna in the Holocene, transhumance is not the only possible model for hunter-gatherer behaviour during middle preceramic times when specialised hunting was being practised. Sedentarism would have been a logical response. (It is important to note at this point that Spunticchia is not in agreement with Rick's biomass calculations). What Spunticchia means is that the location of a site could have been a fundamental part of the decision of human groups to adopt an adaptive model; hence the hypothesis of the transhumance model for sites on the fringes of the puna, as would be the case for Telarmachay, whose population must have come from human groups settled in medium altitude parts of the valley. However, a stable occupation, or sedentary model, would have been easier to establish in the interior of the puna. Such would be the case with Pachamachay, where the possibility existed of access to micro-zones with sufficient and diverse resources (Spunticchia 1989–90:184–5).

The eclectic position adopted by Spunticchia is very interesting and suggestive, but it would require better evidence to make it definitively valid. Although there exists an exhaustive report which permits the use of concrete data for Telarmachay, the same cannot be said for Pachamachay and the other sites studied initially by Matos Mendieta and Rick (1978–80), Kaulicke (1979, 1980), and more fundamentally by Rick (1980, 1983).

A project which should offer important and significant data is one being directed by MacNeish in the zone of Ayacucho. However, at the moment the data have not yet been published, in spite of the fact that the project was initiated at the end of the 1950s. There are some preliminary reports (MacNeish 1969; MacNeish *et al.* 1970) and a few final reports (MacNeish *et al.* 1980, 1981), among which the relevant zoological sections are missing. However, and more seriously, even the published reports are confusing and contradictory. There is very little that can be concluded using these.

MacNeish *et al.* (1970:37) have written that there are indications that the domestication of llamas occurred between 7100 and 5800 BC, but these data were never confirmed or cited in subsequent reports. Furthermore, MacNeish (1969:38) has written that the domestication of the llama took place definitively between 5800 and 4400 BC, although MacNeish *et al.* (1970:37) state it conditionally, as does García Cook (1974:19).

Other reports deal with the phase that corresponds in chronological terms to between 4100 and 3100 BC. In the writings of MacNeish *et al.* (1980:10) and MacNeish and Nelken-Terner (1983: 10) no definite position is reached and a great deal of confusion exists, whilst Wing writes of 'a moderately great dependence on camelids' (1975:34–5, 1977a:848). This information coincides with that of Flannery *et al.* (1989:91), which is even more categorical as they state that it was during this period that animals were first domesticated in Ayacucho.

Another issue which has created a polemic in the literature is the delimitation of the geographical area within which the phenomenon of domestication took place, in which a preference for the high ground prevails. As such, Kent (1987) and Wing (1977b) lean towards the Central Andes. Kent (1987:175) designates the territory of the puna, and wrote that the phenomenon appears when alpacas, or animals similar to the alpaca, are identifiable alongside contextual or biological evidence which enables one to detect a tendency towards new practices of herd management. It is apparent that we are dealing with a process which developed rapidly. Wing (1977b:17) also supports the Central Andean puna as the area of initial domestication. Nonetheless, the Altiplano has been preferred for a long time by many authors. As such, Latcham (1922:82, 1936:611) postulated this zone as the area of domestication of camelids, the point of departure for such a hypothesis being the fact that the basin of Lake Titicaca is the centre of distribution of alpacas for the length of the Andean range. Furthermore, the famous geographer Troll (1931:277; 1935:160, 178–9) also stresses that the basin of Lake Titicaca is where there are the largest concentrations of camelids, and furthermore includes the best resources for their breeding, and that this must have been the zone of domestication.

We must note that both Latcham and Troll worked purely on an intuitive basis and from indirect data. At that time they did not have the archaeological data that are available now. One must further note that the tendency in Andean archaeology to use and look for botanical and zoological data in a systematic way is relatively recent as far as archaeological remains are concerned, beginning perhaps in the late 1960s and early 1970s.

Nonetheless, the opinions of Latchman and Troll have had a strong influence on many studies, and it is interesting that they continue to do so even today. For example, Gilmore (1950:437) has written that llamas were domesticated either in the margins of the highlands of central southern Peru, Bolivia, Northern Chile or in the northwest of Argentina. He particularly cites Latcham (1936) when he refers to the marshlands

around Titicaca. When Gilmore (1950:445) refers to the alpaca, he also indicates the Altiplano as the zone of domestication.

The position taken by Flores Ochoa (1975:297) virtually summarises the thinking of the majority of modern authors. The argument he offers in order to sustain the position that the basin of Titicaca was the centre of domestication of camelids is that upon the arrival of the Europeans this is where the greatest concentration of these animals was found. Furthermore, at present the greatest concentration of llamas and alpacas in the Andean territory occurs in the same area. It is evident that this argument is not totally valid, as the distribution to which Flores Ochoa refers was disturbed by the consequences of the European invasion. Even if there is little documentation, that which exists is nonetheless very clear and dramatic concerning the indiscriminate slaughter of animals that occurred in the early years of the Conquista (Bonavia 1996:348–61). Furthermore, it is apparent that the Europeans were responsible for the elimination of camelids in many areas of Peru, Bolivia and other places, with the subsequent introduction of sheep displacing the native animals (Bonavia 1996:575–9). One of the best examples of this process is the Junín pampa, for which there is much evidence in the chronicles to demonstrate that in pre-Hispanic times there existed a large number of camelids. Today, however, there only remain small groups of vicuñas and a few llamas and alpacas. Flores Ochoa has persisted with this argument in several of his other works (e.g. 1979). Wheeler Pires-Ferreira *et al.* (1977:160–1) have also called attention to the above points.

Most recently, however, the zone of Junín has become the centre of attention for the specialists, and it is postulated, with good reason, that it was here that the phenomenon of camelid domestication occurred. Without a doubt, Wheeler has contributed the greatest evidence to validate this hypothesis, based on a whole series of work that she has written alone or co-authored with colleagues (the most important are, Wheeler Pires-Ferreira 1975; Wheeler 1984, 1985a, 1985b; Wheeler Pires-Ferreira *et al.* 1977). However, it is necessary to emphasis that in pursuing this argument Wheeler has not closed off the possibility that this process could have occurred in other parts of the Andean territory. She states concretely that similar evidence will surely be revealed when archaeologists investigate high altitude sites in the sector of the territory between Junín and the southern border of the basin of Lake Titicaca (Novoa and Wheeler 1984: 124). It must be pointed out that there are other authors, such as Pearsall (1978:394) and Matos Mendieta and Ravines (1980:205), who have postulated this same zone as the centre of camelid domestication. However, they evidently did not have access to Wheeler's database.

Furthermore, Lumbreras (1974:37) leaves open the possibility of several centres of domestication, although he is inclined mainly towards the area of Junín and the area around Lake Titicaca, with greater emphasis on the latter. Furthermore, Lumbreras states that Ayacucho was not a primary centre in this process. Nonetheless, Lumbreras' affirmations are purely theoretical, as he has never carried out investigations in this field.

Only two people, Shimada and Shimada (1985:19), have suggested the possibility of looking for areas not of high altitude as the centre of domestication. They base their argument on the ample information that exists concerning the dietary or climatic flexibility of camelids, which enables the authors to broaden the zones that have been considered up to the present. They indicate that, on the one hand, the actual distribution of camelids has influenced archaeologists to look for sites at high altitudes in order to investigate the problematic of domestication, and, on the other, that for many reasons there has been an overemphasis of work on the coast. As a consequence the middle strip, about which we know practically nothing, has been ignored. The present author is in complete agreement with their position and it is suggested here that the areas of middle altitude are those which will provide us with a great deal of information when they are studied, resolving not only problems related to the utilisation of animals, but also

those concerned with plant domestication. The author has supported this position for some time (see Bonavia 1982:413).

There are some authors who have not taken a position in the debate, such as Mujica (1985: 121–2), who has made a good synthesis of the camelid problem, but does not express his own opinion. Flannery *et al.* (1989:116) similarly do not state a clear position, but limit themselves to saying that in spite of the fact that the most concrete evidence actually comes from Junín and Ayacucho, the initial domestication could have taken place throughout a large area which would correspond to the original distribution of the guanaco. They also agree that one must take care when dealing with the distribution of llama in the sixteenth century, given that this distribution was influenced by regional economic specialisation enforced by the Inca Empire. Neither Stahl and Norton (1987:382), nor Franklin (1982:467) take a definite position.

There is absolutely no doubt that we are still far from a definitive solution to this problem. However, if one weighs up the situation, it must be concluded that in the last twenty years far greater advances have been made than in all the preceding time (see Bonavia 1996). We should not forget that even in the 1960s there were authors who believed that the domestication of camelids occurred after the introduction of land cultivation by agriculturalists (Nachtigall 1966: 196–7), whilst others were convinced that this phenomenon could not have occurred before the Initial Epoch, between 1800 and 900 BC (Lumbreras 1967:267; Tabio 1977:211–12). Currently, all the information indicates to us that llamas and alpacas were domesticated in the high Andes between 4,000 and 4,900 m above sea-level, approximately in the fourth millennium before our era. However, the data could vary when new studies are carried out, as there are large areas of the Andean territory that have not been investigated by archaeologists, and, as we discussed recently with Danièle Lavallée and Michèl Julien *(pers. comm.),* the oldest faunal remains from Telarmachay have not yet been studied and may provide some surprising new information.

Without a doubt there remains a further problem, that of the identification of the ancestral form, or forms, of camelids from which the process of domestication could have started. As Novoa and Wheeler (1984:123) have stated, an extremely wide interdisciplinary study will be necessary in order to obtain better evidence in this respect—at the very least, archaeologists, palaeontologists and biologists will need to co-operate in such a study.

Several authors have attempted syntheses of this issue. While some have centred their argument on the domestic animal—the llama and alpaca—as their point of departure, others have considered the issue in a global fashion and have included the wild forms—the guanaco and vicuña. The first group includes Wheeler (1984, 1985b:78) and Franklin (1982:464), and the second Kent (1987:171–2, 1988:26–8). The synthesis done by Kent is the clearest and best documented, to such a degree that we will follow it in the brief exposition of the material below, adding some data from other authors that seem to us to be complementary.

As Kent (1987:171) has correctly indicated, the reason for the current confusion is the proliferation of philogenetic theories, four of which are currently popular. The first postulates the wild guanaco as the ancestor of the modern guanaco, the modern llama and the modern alpaca. Authors who have accepted this argument include Cook (1925), Mann (1930), Stroock (1937), Gilmore (1950), Herre (1952, 1961, n.d.), Fallet (1961), Zeuner (1963), Jungius (1971), Herre and Rohrs (1977) and Otte and Venero (1979). It is important to point out that Hemmer (1975, 1976) is in agreement with this view insofar as llama are concerned, but disagrees with respect to the alpaca (see below). Wing (1977a:847), if in some ways supporting this position, is not as emphatic as the other authors. In effect, she wrote that the guanaco is a wild form, and could be closely related to the wild ancestor of the llama and alpaca.

The second position unites those who believe that the wild guanaco is the ancestor of the modern forms of guanaco and llama, whilst the wild vicuña is believed to be the ancestor of modern forms of vicuña and

alpaca. The authors who have assumed this position include Antonius (1922), Latcham (1922), Krumbiegel (1952), Steinbacher (1953), Capurro *et al.* (1960), Wheeler (1985b), Flannery *et al.* (1989) and Bustinza Menendez (1970). Otte and Venero (1979) emphatically exclude the possibility that the vicuña could have been the ancestor of the alpaca.

Hemmer (1975) is the only author who has assumed the third position. He argues that a wild form of guanaco is the ancestor of the modern forms of guanaco and llama, while a cross of llama and vicuña has resulted in the modern form of the alpaca.

The fourth position is supported by a group of specialists who maintain that the present-day llama is descended from a wild llama-type animal which has since become extinct, while the modern alpaca is descended from a wild alpaca-type animal, now also extinct. In other words, the ancestors of the llama and alpaca would have been wild animals of the same type, whose fossil remains would correspond to those found in the stratigraphic levels of the Middle and Recent Pleistocene of South America. This is the position taken by López Aranguren (1930), Cabrera (1932) and Cabrera and Yepes (1940), whilst Tonni and Laza (1976) conclusively reject such a possibility.

As Kent (1982:172) has stated very clearly, he concludes that present-day domestic llamas are either descendants of the guanaco or descendants of an animal resembling the llama that existed in the Pleistocene, while the alpaca could be the descendent of the guanaco, or of a similar wild form from the Pleistocene. Furthermore, the alpaca could be descended from a llama that in its turn had guanaco ancestors, which would result in the alpaca being the product of a cross between the vicuña and llama, or it could be descended from a vicuña.

Craig (1985:27–8) has made several observations on this theme which it is important to compare with the above. He argued that in the interval of time between the extinction of megafauna and the domestication of llama and alpaca there existed without a doubt a large population of guanacos, which was the most important species utilised by early humans, although the vicuña could have been as important, above all in the southern part of South America. Furthermore, Craig (1985:27–8) suggests that a proto-lamoide species, which has yet to be identified, could have developed very rapidly during the Late Pleistocene, and could be the genetic stock from which domestic camelids originated. Craig thinks that the preferred habitats of the ancestors of modern domesticated camelids were perhaps transitional between those of the guanaco and llama or alpaca ancestors. Furthermore, he proposes that the *Palaeolama* genetic stock could have been present in the short-necked llamas of the north coast of Peru and in the small domestic *wiquinche* of the indigenous people of central Chile. The above two types of animal have not survived.

The first part of Craig's proposal seems perfectly possible, but the second seems highly speculative. Even if there were evidence that indicated the existence of smaller camelids, the short-necked llamas represented on Moche ceramics of the north coast of Peru have never been identified on an osteological level. Nonetheless, the problem is much more complicated than it seems, as the variations that exist in the size of the fossil bones of camelids are extremely large. Amongst these are examples the size of vicuña, guanaco, alpaca and present-day llamas. There are also bones that correspond indisputably to animals much larger than existing forms, including the bones of an animal that corresponds in size to a dromedary *(Camelus dromedarius)*. As a consequence, Wheeler Pires-Ferreira *et al.* (1977:163) consider that other ancestral forms of domestic camelids, as yet unknown to us, could have existed, which coincides to some extent with Craig's ideas. Furthermore, Flannery *et al.* (1989:91) have suggested that the first domestic camelids must have greatly resembled guanacos, as they presumably did not suffer under selection pressures if we can judge by the broad range of coat colours and wool quality that one sees in the llama and alpaca.

What seems to be agreed upon by the specialists from the data from the excavations at Telarmachay (Wheeler 1985a; Novoa and Wheeler 1984) and Pachamachay is that the first identifiable domestic animals

were alpacas. Kent (1982; 1987:175) has studied the material from the latter site and it appears that there are convergences with the data from Telarmachay.

The early ideas of Maccagno (1912:2), reiterated by Cardozo (1975:105–6), that the domestication of the alpaca was a marginal and very late phenomenon, should definitely be discarded. Furthermore, it is difficult to believe that wool was the fundamental motivation which led people to domesticate these animals, as Bennett and Bird (1960:260) have suggested. This is an argument that Latcham (1922) also used, and which served as the basis for his argument that the area of domestication was the Altiplano.

To take up again what was stated earlier, even if advances have been made in this area of study, we are still far from knowing what actually occurred; more work is necessary in order to achieve such an aim. One must not forget that the Andean territory—not only the highlands but *in toto* —is extremely large and that extensive areas remain unexplored by archaeologists. Furthermore, one should tackle this subject bearing in mind the fact that camelids have very particular patterns of behaviour, to the degree that the study of the domestication of related species can serve as plans of action but not as models for their study According to what we know this holds true, not only for American camelids, but also for Asiatic camelids (see Compagnoni and Tosi 1978; Bonavia 1996:589–90).

REFERENCES

Antonius, O. (1922) *Stammesgeschichte der Haustiere,* Jena: G.Fischer.

Bennett, W.C. and Bird, J.B. (1960) *Andean Culture History,* New York: American Museum of Natural History (Handbook Series no. 15).

Bird, J.B. (1954) *Paracas Fabrics and Nazca Needleworks,* Washington DC: The Textile Museum (Textile Museum Catalogue Raisonné).

Bökönyi, S. (1969) ‘Archaeological problems and methods of recognizing animal domestication’, in P.J.Ucko and G.W.Dimbleby (eds) *The Domestication and Exploitation of Plants and Animals,* London: Duckworth. 219–29.

Bonavia, D. (1982) *Los Gavilanes: Mar, Desierto y Oasis en la Historia del Hombre,* Lima: Corporación Financiera de Desarollo, S.A.COFIDE, Instituto Arqueológico Alemán.

—— (1991) *Peru: Hombre e Historia. De los Orígenes al Siglo XV. I,* Lima: Edubanco.

—— (1996) *Los Camélidos Sudamericanos. Una Introducción a su Estudio,* Lima: IFEA, UPCH, Conservation International.

Burger, R.L. (1984) *The Prehistoric Occupation of Chavín de Huántar, Peru,* Berkeley: University of California Press.

Bustinza Menendez, J.A. (1970) ‘Contribución a la diferenciación específica de los Camélidos Sudamericanos’, *Anales de la Primera Convención sobre Camélidos Sudamericanos (Auquénidos),* Puno: Universidad Nacional del Altiplano (Programa Académico de Medicina Veterinaria y Zootecnia). 26–8.

Cabrera, A. (1932) ‘Sobre los Camélidos fósiles y actuales de la América Austral’, *Revista del Museo de La Plata* 33: 89–117.

Cabrera, A. and Yepes, J. (1940) *Mamíferos Sud-americanos: Vida, Costumbres y Descripción,* Buenos Aires: Historia Natural Ediar.

Capurro, S., Silva, L.F. and Silva, F.C. (1960) ‘Estudios cromatográficos y electroforéticos en Camélidos Sudamericanos’, *Investigaciones Zoológicas Chilenas* 6:49–64.

Cardozo, A. (1975) *Origen y Filogenia de los Camélidos Sudamericanos,* La Paz: Academia Nacional de Ciencias de Bolivia.

Compagnoni, B and Tosi, M. (1978) ‘The camel: its distribution and state of domestication in the Middle East during the third millennium BC in light of finds from Shahr-I Sokhta’, in R.H.Meadow and M.A.Zeder (eds) *Peabody Museum Bulletin,* no. 2: *Approaches to Faunal Analysis in the Middle East,* Cambridge, Mass.: Peabody Museum of Archaeology and Ethnology, Harvard University. 91–103.

Cook, O.F. (1925) ‘Peru as a center of domestication’, *The Journal of Heredity* 16:32–46, 94–110.

Craig, A.K. (1985) 'Cis-Andean environmental transects: Late Quaternary ecology of northern and southern Peru', in S.Masuda, I.Shimada and C.Morris (eds) *Andean Ecology and Civilizations. An Interdisciplinary Perspective in Andean Ecological Complementarity,* Tokyo: University of Tokyo Press. 23–44.

Fallet, M. (1961) 'Vergleichende Untersuchungen zur Wollbildung südamerikanischer Tylopoden', *Zeitschrift für Tierzuchtung und Zuchtungsbiologie* 75:34–56.

Fernandez Baca, A.S. (1971) 'La alpaca: reproducción y crianza', *Boletín de Divulgación, Instituto Veterinario de Investigaciones Tropicales y de Altura* 7:1–43. Lima: Universidad Nacional Mayor de San Marcos.

Flannery, K.V., Marcus, J. and Reynolds, R.G. (1989) *The Flocks of the Wamani. A Study of Llama Herders on the Punas of Ayacucho, Peru,* New York: Academic Press.

Flores Ochoa, J.A. (1975) 'Sociedad y cultura en la puna alta de los Andes', *América Indligena* 35, 2:297–319.

—— (1979) 'Desarollo de las culturas humanas en las montañas tropicales (estrategias adaptativas)', in M.L.Delgado (ed.) *El Medio Ambiente, Páramo,* Caracas: CEA–IVIC, UNESCO, CIFCA. 225–34.

Franklin, W.L. (1978) 'Socioecology of the vicuña', unpublished doctoral dissertation, Utah State University, Logan.

—— (1982) 'Biology, ecology, and relationship to man of the South American camelids', in M.A.Mares and H.H.Genoways (eds) *Mammalian Biology in South America,* Louisville: University of Pittsburgh. 457–89.

Futuyama, D.J. (1979) *Evolutionary Biology,* Sunderland: Sinaner Associates.

García Cook, A. (1974) 'El origen del sedentarismo en el área de Ayacucho, Perú', *Boletín, INAH: epoca II* 11:15–30.

Gilmore, R.M. (1950) 'Fauna and ethnozoology of South America', in J.H Steward (ed.) *Handbook of South American Indians,* vol. 6, Washington DC: Smithsonian Institution, Bureau of American Ethnology. 345–464.

Hemmer, H. (1975) 'Zur Herkunft del Alpakas', *Zeitschrift des Kölner Zoo,* 18, 2:59–66.

—— (1976) 'Zum Problem der Herkunft des Alpakas (*Lama* sp. f.*pacos*)', *Säugetierkundliche Mitteilungen* 24, 3: 193–200.

Herre, W. (1952) 'Studien über die Wilden und domestizierten Tylopoden Südamerikas', *Der Zoologisches Garten N.F.* 19:2–4, 70–98.

—— (1961) 'Tiergeographische Betrachtungen an vorkolumbianischen Haussäugetieren Südamerikas', *Schriften der Geographischen Instituts des Universität Kiel* 20:289–304.

—— (n.d.) 'Zur Geschichte der vorkolumbianischen Haustiere Amerikas', in *El Proyecto de la Fundación Alemana para la Investigación Científica,* I: *Informe sobre los Trabajos Iniciados y Proyectados.* 90–7.

Herre, W. and Rohrs, M. (1977) 'Zoological considerations on the origins of farming and domestication', in C.A.Reed (ed.) *Origins of Agriculture,* The Hague: Mouton. 245–79.

Izumi, S. and Sono, T. (1963) *Andes* 2. *Excavations at Kotosh, Peru, 1960,* Tokyo: Kadokawa.

Jungius, H. (1971) 'The vicuña in Bolivia: the status of an endangered species, and recommendations for its conservation', *Zeitschrift für Säugetierkunde* 36:129–46.

Kaulicke, P. (1979) 'Algunas consideraciones acerca del material óseo de Uchcumachay', in R.Matos (ed.) *Arqueología Peruana. Investigaciones arqueológicas en el Perú, 1976. Seminario,* Lima: Universidad Mayor de San Marcos. 103–11.

—— (1980) 'Der abri Uchkumachay und seine zeitliche stellung innerhalb der lithischen perioden Perus', *Allgemeine und Vergleichende Archaeologie,* KAVA. 429–58. Munchen: Beitrage Band 2.

Kent, J.D. (1982) 'The domestication and exploitation of the South American camelids: methods of analysis and their application to circum-lacustrine archaeological sites in Bolivia and Peru', unpublished doctoral dissertation, Washington University, St Louis.

—— (1987) 'The most ancient south: a review of the domestications of the Andean camelids', in L.Manzanilla (ed.) *Studies in the Neolithic and Urban Revolution,* Oxford: British Archaeological Reports (International Series 349). 169–84.

—— (1988) 'El sur más antiguo: revisión de la domesticación de Camélidos andinos', in J.Flores Ochoa (ed.) *Llamichos y Pagocheros, Pastores de Llamas y Alpacas,* Cuzco: CONCYTEL, CEAC y Editorial UNSAAC. 23–35.

Krumbiegel, I. (1944) 'Die neuweltlichen tylopoden', *Zoologischer Anzeiger* 145:45–70.

—— (1952) *Lamas,* Leipzig: Neue Brehmbücherer.

Latcham, R.E. (1922) 'Los animales domésticos de la America precolombina', *Publicaciones del Museo de Etnología y Antropología de Chile* 1:1–199.

—— (1936) 'Atacameño archaeology', *American Anthropologist,* 38, 4:609–19.

Lavallée, D. (1978) 'Pasteurs préhistoriques des hautes plateaux andins', *L'Histoire* 5:33–42.

Lavallée, D., Julien, M., Wheeler, J. and Karlin, C. (1985) *Telarmachay: chasseurs et pasteurs préhistoriques des Andes*—I. Tome I, Paris: Institut Français d'Études Andines.

León, J.A. (1939) 'Algunas consideraciones sobre los camélidos de los Andes', *Boletín del Museo Natural Javier Prado* 3, 11:95–105.

López Aranguren, D.J. (1930) 'Camélidos fósiles argentinos', *Anales de la Sociedad Científica Argentina* 59: 15–35, 97–126.

Lumbreras, L.G. (1967) 'La alimentación vegetal en los orígenes de la civilización andina', *Perú Indígena* 26:254–73.

—— (1974) *The People and Cultures of Ancient Peru,* Washington DC: Smithsonian Institution Press.

Lynch, T.F. (ed.) (1980) *Guitarrero Cave. Early Man in the Andes,* New York: Academic Press.

Maccagno, L. (1912) 'La raza de alpaca Suri', *Anales de la Dirección de Fomento* 11:1–6.

MacNeish, R.S. (1969) *First Annual Report of the Ayacucho Archaeological-Botanical Project,* Andover: Robert S.Peabody Foundation for Archaeology, Phillips Academy.

MacNeish, R.S. and Nelken-Turner, A. (1983) 'Introduction to pre-ceramic contextual studies', in R.S.MacNeish, R.K.Vierra, A.Nelken-Turner, R.Lurie and A.Garcia Cook (eds) *Prehistory of the Ayacucho Basin, Peru,* vol. 4, *The Preceramic Way of Life,* Ann Arbor: University of Michigan Press. 1–15.

MacNeish, R.S., Nelken-Terner, A. and García Cook, A. (1970) *Second Annual Report of the Ayacucho Archaeological-Botanical Project,* Andover: Robert S.Peabody Foundation for Archaeology, Phillips Academy.

MacNeish, R.S., Nelken-Terner, A. and Vierra, R.K. (1980) 'Introduction', in R.S.MacNeish, R.K.Vierra, A.Nelken-Turner and C.J.Phagan (eds) *Prehistory of the Ayacucho Basin, Peru* vol. III. *Nonceramic Artifacts,* Ann Arbor: University of Michigan Press. 1–34.

MacNeish, R.S., García Cook, A., Lumbreras, L.G., Vierra, R.K. and Nelken-Terner, A. (1981) *Prehistory of the Ayacucho Basin, Peru,* vol. II. *Excavations and Chronology* Ann Arbor: University of Michigan Press.

Mann, W.M. (1930) 'Wild animals in and out of the zoo', *Smithsonian Scientific Series* 6:302–3.

Matos Mendieta, R. and Ravines, R. (1980) 'Período Arcaico (5,000–1,800 A.C.)', *Historia del Perú,* Tomo I. *Perú Antiguo,* Lima: Editorial Juan Mejía Baca. 157–250

Matos Mendieta, R. and Rick, J.W. (1978–80) 'Los recursos naturales y el poblamiento precerámico de la puna de Junín', *Revista del Museo Nacional* 44:23–68.

Miller, R. (1984) 'Deer hunters and llama herders: animal species selection at Chavín', in R.L.Burger (ed.) *The Prehistoric Occupation of Chavín de Huántar, Peru,* Berkeley: University of California Press. 282–7.

Mujica, E. (1985) Altiplano-coast relationship in the south-central Andes: from indirect to direct complementarity', in S.Masuda, I.Shimada and C.Morris (eds) *Andean Ecology and Civilization. An Interdisciplinary Perspective on Andean Ecological Complementarity,* Tokyo: University of Tokyo Press. 103–40.

Murra, J.V. (1965) 'Herds and herders in the Inca state', in A.Leeds and A.P.Vayda (eds) *Man, Culture, and Animals: The Role of Animals in Human Ecological Adjustments,* Washington DC: American Association for the Advancement of Science. 185–215.

Nachtigall, H. (1966) 'Ofrendas de llamas en la vida ceremonial de los pastores de la puna de Moquegua (Perú) y de las punas de Atacama (Argentina), y consideraciones histórico-culturales sobre la ganadería indígena', *Actas y Memorias: XXXVI Congreso Internacional de Americanistas, España* 3:193–8.

Novoa, C. and Wheeler, J.C. (1984) 'Llama and alpaca', in I.L Mason (ed.) *Evolution of Domesticated Animals,* London and New York: Longman, 116–28.

Otte, K.C. and Venero, J.L. (1979) 'Analysis of the differential craniometry between the vicuña *(Vicugna Vicugna)* and the alpaca *(Lama guanicoe pacos)*', *Studies on the Neotropical Fauna and Environment* 14, 2–3:125–52.

Pearsall, D.M. (1978) 'Paleoethnobotany in western South America: progress and problems' in R.I.Ford (ed.) *The Nature and Status of Ethnobotany,* Ann Arbor: Anthropological Papers, University of Michigan Press. 389–416.

Raedeke, K.J. (1979) 'Population dynamics and socioecology of the guanaco *(Lama guanicoe)* of Magallanes, Chile', unpublished doctoral dissertation, College of Forest Resources, University of Washington, Seattle.

Rick, J.W. (1980) *Prehistoric Hunters of the High Andes,* New York: Academic Press.

—— (1983) *Cronología, Clima y Subsistencia en el Precerámico Andino,* Lima: Ediciones Indea, Instituto Andino de Estudios Arqueológicos.

Scossiroli, R.E. (1984) *L'uomo e l'agricultura. II problema delle origini,* Bologna: Eadagricola

Shimada, M. and Shimada, I. (1985) 'Prehistoric llama breeding and herding on the north coast of Peru', *American Antiquity* 50, 1:3–26.

Smith Jr., C.E. (1980a) 'Plant remains from Guitarrero Cave', in T.F.Lynch (ed.) *Guitarrero Cave. Early Man in the Andes,* New York: Academic Press. 87–119.

—— (1980b) 'Ancient Peruvian highland maize', in T.F.Lynch (ed.) *Guitarrero Cave: Early Man in the Andes,* New York: Academic Press. 121–43.

Spunticchia, R. (1989–90) 'Modelli di insediamento proponibili per i gruppi di cacciatori e raccoglitori della "puna" di Junín (Ande Centrali Peruviane)', unpublished doctoral dissertation, Universitá degli Studi di Roma 'La Sapienza', Rome.

Stahl, P.W. and Norton, P. (1987) 'Precolumbian animal domestics from Salango, Ecuador', *American Antiquity* 52, 2: 382–91.

Steinbacher, G. (1953) 'Zur Abstammung des Alpakas, *Lama pacos* (Linné 1785)', *Säugetierkundliche Mitteilungen* 1, 2:78–9.

Stroock, S.I. (1937) *Llama and Llamaland,* New York: S.Stroock and Co.

Tabio, E. (1977) *Prehistoria de la Costa del Perú,* Havana: Academia de Ciencias de Cuba.

Thévenin, R. (1961) *El Origen de los Animales Domésticos.* Buenos Aires: Editorial Universitaria de la Universidad de Buenos Aires.

Tonni, E.P. and Laza, J.H. (1976) 'Paleoetnozoología del area de la Quebrada del Toro, provincia de Salta', *Relaciones de la Sociedad Argentina de Antropología* 10:131–40.

Troll, C. (1931) 'Die geographischen Grundlagen der Andinen-Kulturen und des Inkareiches', *Iberoamericanisches Archiv* 5:258–94.

—— (1935) 'Los fundamentos de los civilizaciones Andinas y del Imperio Incaico', *Revista Universitaria, Universidad de Arequipa* 8, 9:127–83.

—— (1968) 'The cordilleras of the tropical Americas. Aspects of climate, phytogeography and agrarian ecology', *Geo Ecology of the Mountainous Region of the Tropical Americas. Proceedings of the UNESCO Mexico Symposium. Colloqium Geographicum herausgegeben vom Geographischen Institut der Universität,* Bonn: Ferd. Drümmlers Verlag. 15–56.

Vallenas, A. (1970) 'Comentarios sobre la posición de los camélidos sud-americanos en la sistemática', *Boletín Extraordinario, Instituto de Investigaciones Tropicales y de Altura* 4:128–41.

Wheeler, J.C. (1984) 'On the origin and early development of camelid pastoralism in the Andes', in J.Clutton-Brock and C.Grigson (eds) *Animals and Archaeology,* Oxford: British Archaeological Reports (International Series 202). 395–410.

—— (1985a) 'La faune', in D.Lavallée, M.Julien, J.Wheeler and C.Karlin (eds) *Telarmachay, chasseurs et pasteurs préhistoriques des Andes—I,* Paris: Institut Français d'Etudes Andines. 28–32.

—— (1985b) 'De la chasse a l'élevage', in D.Lavallée, M.ulien, J.Wheeler and C.Karlin (eds) *Telarmachay, chasseurs et pasteurs préhistoriques des Andes—I,* Paris: Institut Français d'Études Andines. 61–79.

Wheeler Pires-Ferreira, J.C. (1975) 'La fauna de Cuchimachay, Acomachay A, Acomachay B, Telarmachay y Utco I', *Revista Nacional del Museo Nacional* 41:120–7.

Wheeler Pires-Ferreira, J.C., Pires-Ferreira, E. and Kaulicke, P. (1977) 'Domesticación de los camélidos en los Andes centrales durante el período precerámico: un modelo', *Journal de la Société des Américanistes* 64:155–65.

Wing, E.S. (1975) 'La domesticación de los animales en los Andes', *Allpanchis Puthurinqa* 8, 8:25–44.

—— (1977a) 'Animal domestication in the Andes', in C.Reed (ed.) *Origins of Agriculture,* The Hague: Mouton. 837–59.

—— (1977b) ‘Prehistoric subsistence patterns of the central Andes and adjacent coast and spread in the use of domestic animals’, Florida: Report NSF Soc 74–20634.

—— (1980) ‘Faunal remains’, in T.F.Lynch (ed.) *Guitarrero Cave. Early Man in the Andes,* New York: Academic Press. 149–72.

Zeuner, F.E. (1963) *A History of Domesticated Animals,* London: Hutchinson.

Chapter Eight

Early modes of life of the indigenous population of northeastern Venezuela

Mario Sanoja and Iraida Vargas Arenas

INTRODUCTION

Until 1976, knowledge of the culture of the early hunter, gatherer and fishing groups of eastern Venezuela was based on the data obtained by Cruxent and Rouse (1961) in their excavations of the shell mounds on Cubagua Island and in the Araya Peninsula. According to both authors, there existed a technical tradition characterised by the early coexistence of stone and shell tools in 4300 BP, followed by a predominance of shell over stone as a raw material in the manufacture of tools. This pattern is also present in many preceramic sites in Cuba in the Greater Antilles (Osgood 1942; Dacal Mouré 1972; Sanoja and Vargas Arenas 1995:46–7).

Recent research carried out by the authors, using the theoretical developments of social archaeology in Latin America (see Vargas and Sanoja, this volume), casts light on the early indigenous population of northeastern Venezuela. The concept of 'mode of life' (ML) was used as an interpretative tool in the understanding of the regional archaeological record. Up to the present, three modes of life and their respective variations can be defined for northeastern Venezuela. The different modes of life represent sometimes parallel alternatives in the process of 'social domestication' of human groups. In other words, the ML represent the development and consolidation of social ties that weld together family units into stable bands, as well as reciprocal solidarity, via the redistribution of the collective product, the organisation of social labour, and the emergence of a locus of authority (Sanoja and Vargas Arenas 1995). The materialisation of a locus of authority rests on the existence of a socially organised labour force. Since the existence of such a locus is expressed primarily through inter-subjective social relationships based on prestige, excellence of labour, and charisma, contact among people must be intense and continuous. Such relationships generate a locus of authority, which is, in turn, maintained by the daily repetition of particular social experiences within a stable collective.

Using the concept of 'mode of life', as well as other theoretical developments from Latin American social archaeology (see Vargas Arenas and Sanoja, this volume), in this chapter we will summarise and discuss the social organisation and subsistence patterns of the ancient population of northeastern Venezuela.

THE GEOMORPHOLOGICAL SETTING

The life of the indigenous communities that have inhabited northeastern Venezuela since 7000–6500 BP has been influenced in a significant way by the profound world-wide environmental changes that occurred at the close of the Pleistocene, particularly the fusion of vast masses of ice in the northern hemisphere. As a

consequence of this, the Early Holocene saw the steady rise of sea-levels in several continents, substantially affecting coastal relief as well as world temperature. A comparative analysis of the oceanographic, geomophological and archaeological data related to the Early Holocene of the eastern Caribbean, between northeastern South America (northeastern Venezuela, Guyana, Surinam and French Guiana), and the islands of Trinidad, Jamaica, the Dominican Republic and Haiti, Cuba and the Florida Peninsula, USA, could possibly show the extent of a general process of sea-level changes that greatly modified the coastal morphology of the area. The life of the archaic human populations that inhabited the area may have been affected, as demonstrated in both extremes of the eastern Caribbean arch since the Early Archaic of the Florida Peninsula, 9000–7000 BP (Widmer 1988:202), and the Early Archaic of Trinidad Island, northeastern South America, since 7180 BP (Harris 1976; Veloz Maggiolo 1976:46; 1991: 57). That general process has been studied by different scientists, including Fairbridge (1976), whose much discussed thesis proposed that the marine transgressive process in the Atlantic coast of South America had not been a steady lineal one, but on the contrary, a jagged line marked by a series of local transgressions and regressions related to world sea-level changes. Several archaeological studies, mostly in Florida, have concluded that the Fairbridge curve is a much better model than the majority opinion (Ruppé 1980:332). In southern Brazil, Fairbridge's thesis, although considered only a working hypothesis, stimulated the interest of several scholars in systematising the archaeological phases to explain the peopling of the littoral within the framework of the evolution of the littoral landscape. A high sea-level period (2.5 m above the present level) seems to have occurred between 5800 and 4800 BP, followed by several oscillations of high and low sea-level until final stabilisation around 2000 BP (Prous and Piazza 1977:27–36). Fairbridge's series of proposed transgressive and regressive intervals were experimentally plotted by Sanoja (1989a) using the archaeological data related to preceramic and ceramic sites from eastern Venezuela. For the period between 5000 and 2000 BP, an interesting correlation between transgressive intervals and expansion of the marine hunter-gatherer population, and between regressive periods and the presence of sedentary agricultural groups was obtained (Fig. 8.1)

The fundamental research in the Gulf of Paria (Fig. 8.2) was performed by Dutch scientists, most of them connected with the Orinoco Shelf Expedition sponsored by the Institute of Marine Geology of the University of Groningen (Van Andel and Postma 1954; Van Andel and Sachs 1964; Van Andel 1967; Nota 1958; Koldewijn 1958). Their research established the basic knowledge of the complex recent conditions of sedimentation in the Gulf of Paria, based on detailed hydrographic, bathygraphic and stratigraphic studies, and analysis of gravel composition, heavy minerals, clay mineralogy, granulometry macrofauna and microfauna associations. The general conclusions of the Orinoco Shelf Expedition indicated that the sea-level started to rise above the low level prevailing in the Paria shelf during the Late Pleistocene period around 13000–11000 BP (Nota 1958:86; Koldewijn 1958:105; Van Andel and Sachs 1964), reaching the contour line 4 m above sea-level around 6500 BP (Van Andel and Postma 1954:27), submerging most of the ancient coastline. According to Van Andel and Sachs (1964) and Van Andel (1967:307), a radiocarbon date of 9500 BP establishes the beginning of the transgression over the north flank of the Gulf of Paria, while the construction of the Orinoco Delta had already begun by 8000 BP. This process is demonstrated in the Gulf of Paria by the presence of a thick layer of bluish marl, a sedimentary deposit found on the marine bed, covered by another deposit of fluvial origin.

Preceramic and aceramic sites: (1) Banwari Trace (Trinidad); (2) Guayana, Ño Carlos and Remigio (Paria); (3) Las Varas, El Bajo and Laguna Grande (Gulf of Cariaco); (4) La Aduana and Cubagua (Cubagua Island); (7) Pedro García and Jóse (Antzoátegui); (8) Playa Grande (Paria).

Ceramic sites: (5) Barrancas Phase (Lower Orinoco); (6) Ronguín Phase (Middle Orinoco); (9) Cuartel Phase (Paria), the beginning of the Saladoid migration towards the Antilles.

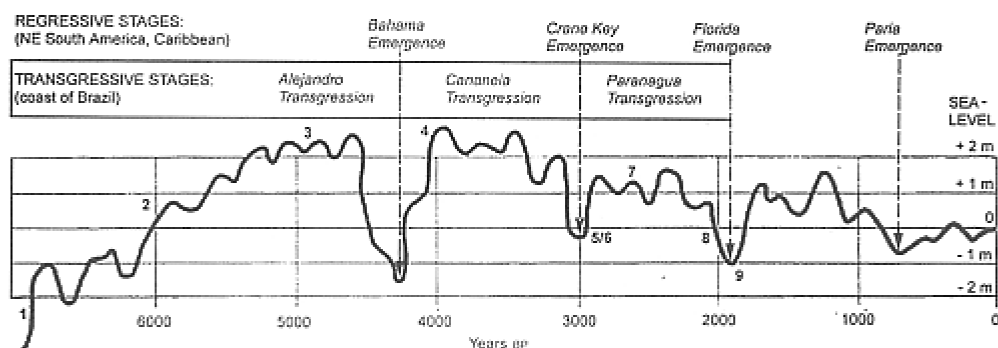


Figure 8.1 Fairbridge's theory on regressive and transgressive stages, related to preceramic and ceramic agricultural sites in northeastern Venezuela.



Figure 8.2 Preceramic archaeological sites in northeastern Venezuela (after Sanoja 1989a).

According to our own archaeological interpretation of Van Andel's data for the Gulf of Paria (Sanoja and Vargas Arenas 1995:7–98), between 5000 and 2500 BP the sea-level could have risen an estimated 9.7 mm annually. This is greater than the estimated 5 mm annual rise in sea-level for Jamaica (Hendry and Digerfeldt 1989) and Florida (Widmer 1988), which is possibly due to tectonic reasons as well as to the influence of the Orinoco River.

Clapperton's (1993:569–72) studies of the Atlantic littoral of Guyana, Surinam and French Guiana, between the mouths of the Orinoco and Amazon Rivers, group the sediments of the main Holocene plain into four main transgressive phases, known as the Demerara Series, dated between 9000 and 6000 BP. The first transgressive phase—the Mara Phase—occurred at *c.* 8000 BP, at the same moment when, according to Van Andel (1967:307), the Orinoco Delta began to be formed. Evidence for the Mara Phase consists of grey marine layers deposited in the brackish waters of lagoons and swamps situated behind coastal sand belts and in flooded estuaries. The marine transgression is identified by sedimentary layers of bluish marl found on the same bed, covered by another deposit of fluvial origin, in a similar way to that exposed by Van Andel in Paria. The regularities of the Holocene transgressive process in the area are stressed at the Guayana shell midden (see Fig. 8.2), in the foothills of the Sierra de Paria, northeastern Venezuela. On a possible fossil delta formed on the coastline of an ancient estuary, the lowest archaeological deposits of the midden rest over a bed of fluvial sediments located over the stratum of bluish marl (Sanoja and Vargas Arenas 1995: 151), possibly relating this event to a period of stabilisation of the coastline that occurred between 7000 and

6000 BP (Sanoja 1992:68). The radiocarbon date for the archaeological refuse located in the basal layer of fluvial sediments at the Guayana midden is 5600±200 BP, almost contemporaneous with the last phase of the Demerara Series (Sanoja and Vargas Arenas 1995:197).

The changes in coastal relief in the areas where early shell-gatherer, hunter and fishing groups settled, besides the interplay between eustatic and epirogenic processes, were also influenced by local fluvial sedimentation produced by the tide, marine currents and the wind. Subsidence caused by marine and fluvial sedimentation would have been greater at the mouths of rivers and streams that discharged into the existing estuaries of the Gulf of Paria and Cariaco, the San Juan Valley (one of the main northern affluents of the Orinoco Delta) and the littoral lagoons of northeastern Venezuela.

THE CHRONOLOGY OF EARLY HUMAN SETTLEMENTS

The utilisation of the environment by early populations of shell-gatherers and hunters can be related to three main types of environment in northeastern Venezuela: the coastal area of the ancient estuaries; the littoral lagoons; and the oceanic beaches and islands (see Fig. 8.2).

The coastal area of ancient estuaries

At present, two of the earliest sites in the Gulf of Paria are Guayana and Ño Carlos, dated to *c.* 6500 BP, and located in the foothills of the Sierra de Paria, on the road between the towns of El Pilar and Yaguaraparo (Fig. 8.2). The road may correlate to the coastline of an ancient estuary, as there exists a stretch of flat, marshy land about 7–10 km in length between the mountains and the present coastline. According to the archaeological and geomorphological data, Guayana site, as stated above, was possibly located on an ancient delta formed by the accumulation of fluvial sediments at the mouth of the Guayana River above the coastline of an ancient estuary, whereas Ño Carlos site is located over a cone of sediments formed in ancient times by the Ño Carlos stream at the foothills of the Sierra de Paria. Mangrove forests formed an interface between the estuary and the steep foothills of the Sierra de Paria, where the camps of the shell-gatherers were located (Sanoja and Vargas Arenas 1995). The bands of shell-gatherers, hunters and fishers lived in wind-breakers located on top of the shell middens (Fig. 8.3), and subsisted by the direct exploitation of the natural resources of the mangrove forests and the shallow waters of the estuary.

A further site, at Remigio, is located in the foothills of the Macizo Oriental, on the road between the towns of Casanay, Sucre State, and Maturín, Monagas State, on the sedimentary formation of a possible ancient delta at the mouth of Caño Cruz, an affluent of the San Juan River. At the time (*c.* 7000–6000 BP) most of the San Juan Valley may have been covered by an ancient estuary created by the waters of the San Juan and Orinoco Rivers—together with the Atlantic Ocean— and surrounded to the west, north and south by the cordillera of the Macizo de Caripe. The mangrove forests seem to have contoured the muddy shores of the estuary, concentrating at the mouths of the streams that discharge into the San Juan River.

The character of the changing environment in northeastern Venezuela during the Middle Holocene must have been influenced mainly by the formation of the Orinoco Delta. As stated above, according to Van Andel (1967), the beginning of the transgressive sequence that characterises the post-glacial period in the Gulf of Paria may have taken place around the end of the Pleistocene, some 15,000 years BP. By 9510–8000 BP the formation of the Orinoco Delta had already begun, a process demonstrated by the presence of a thick layer of bluish marl, a sedimentary deposit found on the marine bed, covered by another deposit of fluvial origin. The deepest deposits in the archaeological sites located along the coastline of the ancient estuaries in northeastern Venezuela are found in the fluvial sediments and are possibly related to a period of



Figure 8.3 Theoretical representation of an ancient wind-breaker at the Guayana shell midden, Paria (after Sanoja 1989a).

stabilisation of the coastline between 7000 and 6000 BP. It is possible that during this period the mangrove forests also stabilised along the estuarine littoral, creating a productive ecosystem that allowed long-term occupation of the area by early populations of shell-gatherers and hunters (Sanoja and Vargas Arenas 1995: 95–103) who may previously have been living in the Orinoco Basin. The finding of deer antlers *(Odocoyleus sp.)* and bones of *Didelphis marsupialis* in the deepest layer of the Guayana shell midden (Fig. 8.4), as well as at Remigio, seems to indicate that until around 6000–5600 BP the original settlers of both sites still continued to hunt terrestrial fauna. That practice then seems to have been abandoned until *c.* 4600 when the people of the third mode of life (see below) living at Las Varas began to hunt land mammals again (Fig. 8.5).

The littoral lagoons

According to Roa (1988), and from our own research (Sanoja and Vargas Arenas 1995), by 4500 BP the Caribbean, as well as the waters of the estuaries, had already flooded certain areas of the central and northeastern Venezuelan coastline. Such may have been the case for Unare Lagoon and the Gulf of Cariaco, where coastal lagoons, related to the riverine basins of the interior, may have already existed, creating an interdependent system of waterways by way of the marine tides entering the lagoons through streams *(caños)* that connected them to the sea. The above process probably allowed the development of thick

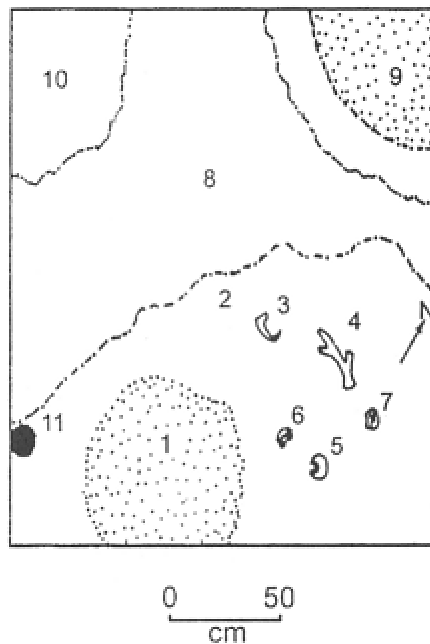


Figure 8.4 (above) Habitation floor, Guayana shell midden. (1) and (9) Ash, charcoal and shells. (3) and (4) Mammal bones. (5–7) Abraders in soft sandstone. (11) Wind-breaker post hole.

mangrove forests around the brackish waters of the interior, creating a rich environment that was exploited by the bands of hunter-gatherers that populated the coast of northeastern Venezuela.

The bands of hunter-gatherers living in the littoral ecosystem became specialised in the exploitation of its multiple resources. As such, the lagoon became the pivotal point of a series of interconnected human labour processes that embraced the sea, the rivers, the dry tropical forest of the lowlands, and the humid tropical forest of the mountains, that together provided the bands with an aggregate of abundant and stable natural resources. To exploit this set of combined ecosystems, the bands of shell-gatherers possibly had to restructure their social organisation and their seasonal labour schedules. Annual labour schedules would have to be designed to cater for the exploitation of the different ecosystems, as well as for the organisation of the seasonal movements of parts of the band in and out of the camp. An investment in social work manifested itself in settled communities in the form of houses with square plans (Fig. 8.5) which differ from the camps with wind-breakers that characterise the sites in the ancient estuaries (see Sanoja and Vargas Arenas 1995: fig. 30).

The oceanic beaches and islands

By 4000 BP the rise in sea-level had possibly submerged part of the littoral area of the islands in front of Paria, as can be inferred from the presence of possible marine terraces in the Charagato Basin, Cubagua Island (see Sanoja and Vargas Arenas 1995: map 6). For instance, the rise in sea-level could have produced an elevation of the water-table on Cubagua island, allowing ponds of brackish water to form in certain beach areas, where sweet water seeping from the less dense subsoil could be collected in the upper layer. A similar phenomenon occurs today in certain barren keys of southern Cuba, where fishermen not only find



Figure 8.5 (right) Habitation floor at Las Varas shell mound, layer three. Different work processes shown in the artefacts and organic remains located around the central hearth (4). (AD) Compact clay layer. (AF) Phallic adornment. (AZ) Adze. (FO) Ochre fragment. (GT) Melongena shell. (H) Adze. (HB) Sirenid bone. (HC) Lithic hatchet or gouge. (HM) Deer bone. (L) Stone flake. (M) Lithic hammer. (MA) Conical pestle. (N) Lithic nucleus. (NP) Prismatic nucleus. (PL) Lithic plate. (PM) Micaschist pectoral. (PP) Projectile point. (PR) Net weight. (PT) Lithic pectoral or breast plate. (PV) Post holes. (VB) Whale vertebrae. (VP) Fish verteberae. (W) Sirenian vertebrae.

Working processes represented: hunting, fishing, collecting, cultivation, deforestation, bone- and wood-working, stone-carving, exotic rough material utilisation, food preparation and fire tending; corporal care, ideology (after Sanoja and Vargas Arenas 1995).

streams of sweet water in the sea, but are also able to cultivate vegetables in the humid sands near the open beaches (Nuñez Jiménez 1983). Late settlements of marine hunter-gatherers, possibly dating from the first millennium BC, are usually located on oceanic open beaches in the Araya and Paria Peninsulas, Sucre

State, or in the coastal swamps of Anzoátegui State which may be related to the regression of the sea-level that appears to have occurred at the close of the millennium.

CONDITIONS OF LIFE OF THE MARINE GATHERERS, HUNTERS AND FISHERS

Various species of mangrove oysters, such as *Crassostrea rizophorae Guilding, Anomalocardia brasiliana, Arca sp., Lucina,* and gastropods such as the *Melongena melongena Linnée, Thais,* among others, constituted one of the main sources of food for daily consumption of the marine gatherers, hunters and fishers. Mangrove oyster in particular is not only an abundant natural resource which is easy to collect, but it is also capable of relatively rapid reproduction in over-exploited environments. As such, the mangrove ecosystem was extremely important in the process of sedentarisation initiated by some of the ancient populations of marine hunters, gatherers and fishers in northeastern Venezuela. Mangrove forests represent a complex interrelated system of food chains which include several species of molluscs, gastropods, fish, reptiles and birds that attract a varied terrestrial fauna. The forests are also an important reservoir of raw materials, including wood, fibres, resins, pigments and oil. Regarding the productivity of molluscs, one hectare of soil in a mangrove forest can yield an average of 17,000,000 individuals (Veloz Maggiolo 1976; Sanoja 1992; Sanoja and Vargas Arenas 1995:84). Furthermore, mangrove forests contribute to the formation and fixation of soils very rich in organic sediments, which might be related to the adoption of the various vegetable species that were tended by human populations to be used as food (West 1977; Chapman 1977; Lugo and Snedaker 1974; Sanoja and Vargas Arenas 1995; Sanoja 1992).

In most of the sites we studied in northeastern Venezuela, mangrove forests appear to have dwindled away towards the end of the first millennium BC, when the ecological conditions created by the rise in sea-level ceased to exist (Sanoja and Vargas Arenas 1995; Sanoja 1992). In most cases where no trace of the mangrove forest is left its presence is represented at archaeological sites by a huge accumulation of valves and shells of *Crassotrea, Anomalocardia, Lucina, Melongena,* and *Thais,* as well as by the bones of estuarine and marine fish.

THE MODES OF LIFE OF THE MARINE GATHERERS, HUNTERS AND FISHERS IN NORTHEASTERN VENEZUELA

The first ML is represented at the Ño Carlos and Remigio (5270±110–4520±70 BP) sites. Bands at these sites would probably have exploited the natural resources within a determined territorial space, without necessarily generating a consciousness of property, the collective possession of the area and its resources, or the products appropriated by them. Consequently, once back to their temporary or semi-permanent habitation site, each nuclear family would be free either to consume its part of the produce individually, or to share it with the other members of the band. In a certain way, the band's domestic life can been seen as an extension of its interspecies relationship with the environment. This possibility is manifested in the archaeological record at Ño Carlos and Remigio through the presence of possible longitudinal collective wind-breakers where contexts of individual consumption can be noted, as well as the absence of activity areas, such as collective hearths (see Sanoja and Vargas Arenas 1995:113, figs 1, 2, 5 and 6). Consequently, permanent associations would be comprised of individuals holding consanguineous ties inside every basic family nucleus, while social relations with other similar nuclei would be of a contingent, temporary, or even cyclical nature. In such conditions, the development of any form of authority or organised social life that would allow the groups to overcome the limitations of the first ML would not have been feasible.

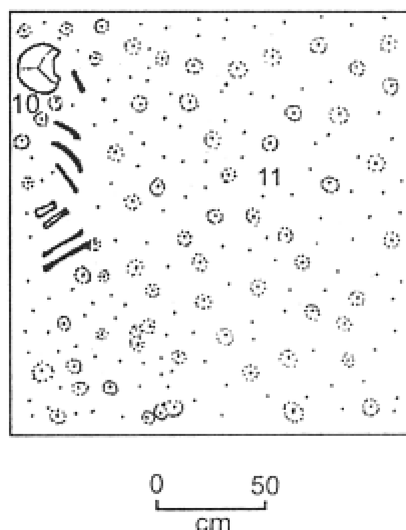


Figure 8.6.1 El Bajo. Primary burial under ash layer number 4 (10) Primary burial: human long bones and skull fragments. (11) Layer of ash and refuse (after Sanoja and Vargas Arenas 1995).

Conversely, within the second ML, as represented by the sites of Guayana (5600±200–3500±90 BP), El Bajo, Cubagua (4150±80 BP) and Manicuare (3570±130 BP), the bands seem to have reached a higher level of organisation and social cohesion, manifested by different forms of solidarity and transgression, a more complex variety of working processes, and a permanent occupation of habitation sites. The existence of activity areas such as hearths of variable size (see Sanoja and Vargas Arenas 1995: figs 12.1, 13, 14 and 17), sometimes built over the burial of an ancestor (figs 8.4 and 8.6), enriched the experience of communal life, so that eating and sharing food could also be a communal ritual offered to the ancestors of the band. In the case of Guayana and El Bajo, houses seem to have been collective wind-breakers, some 10m long.

According to Leroi-Gourhan (1971:311), the habitat is a concrete symbol of a particular social system. Following his thinking, the key to understanding the specificity of the society of marine gatherers, hunters and fishers is not only in the study of their tools, but also in the examination of the structure of the activity areas that make up the domestic space. One of the material indicators of the conscious development of the structure of the habitat in this type of society would be the systematic utilisation of fire to transform raw aliment into cooked food, which is a characteristic of the bands grouped within the second ML. The presence of collective ground (Fig. 8.5) could be considered an archaeological indicator that alludes to the existence and the character of the mechanisms of reciprocity and redistribution, as well as to the development of forms of authority to impose and sanction institutionalised reciprocity and social co-operation. Where collective or central ground does not exist, the absence or presence of evidence of the systematic use of fire to cook food, or the presence of sporadic or limited use of fire and contexts of individual consumption (Fig. 8.7), could be considered an indicator of the prevalence of individual behaviour and an absence of coherent forms of central authority and redistribution.

Within the third ML, characterised by Las Varas site (4600±70 BP), located on the banks of the Campoma Lagoon, Sucre State, the presence of activity areas such as central, collective ground within the domestic space of a habitation unit, is related to the existence of a stable village (Fig. 8.5). The natural resources appropriated by individuals of the band within the several ecosystems exploited by the human group, are brought together at the central area to be processed and cooked. The meat from the larger game

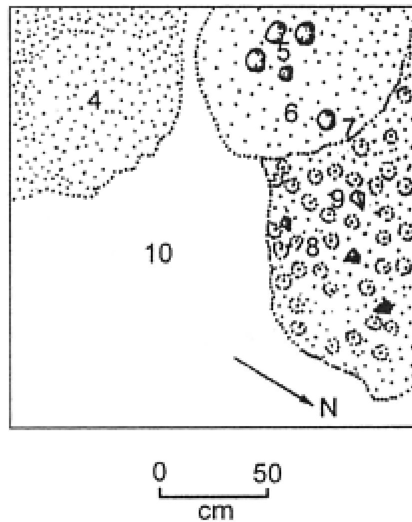


Figure 8.6.2 Habitation floor, El Bajo shell mound. (4) Ash deposit. (5–7) Stones possibly used as 'topias' to hold food over the braises (coals). (8–9) Shells, ash, and stone artefacts. (10) Layer of sandy clay without refuse.

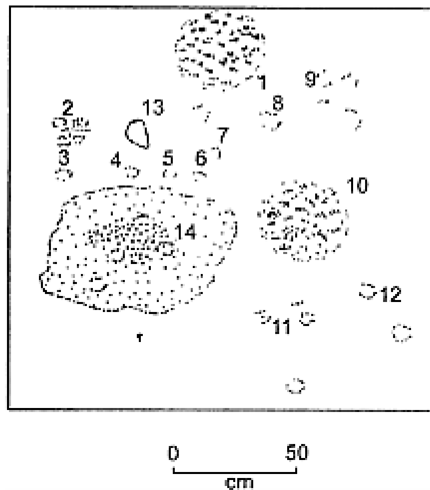


Figure 8.7.1 Habitation floor, La Aduana shell midden, Cubagua Island.

(1–13) Contexts of individual consumption (sea urchin). (14) Layer of ash.

(deer, peccaries, sirenid, etc.) appears to have been distributed among the different households for consumption, following the discontinuous presence of skeletal remains of these animals within the different stratigraphic layers in the habitation areas. Once into this cycle, the appropriated product is stripped of its individual origin and becomes the property of the community. An oyster, a fish, a piece of deer meat roasted in the collective fire becomes more than a natural resource; it represents the spirit of the collective since it has been processed in the fire produced and tended by the group.

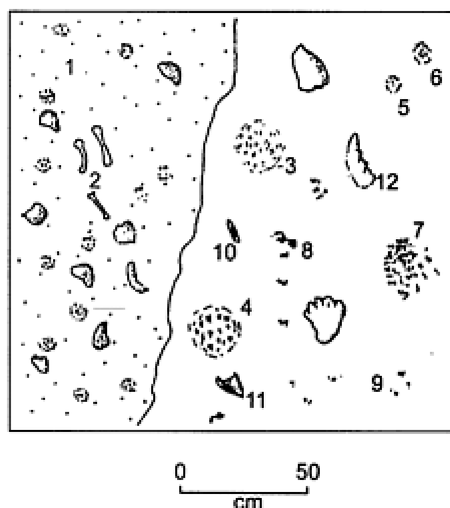


Figure 8.7.2 Habitation floor, La Aduana shell midden, Cubagua Island.

(1) Conch projectile point.

(2) Layer of ash with turtle bones, conch fragments and bivalve shells. (3–7) Contexts of individual consumption (sea urchin). (8, 9, 10) Clusters of sea-urchin spines consumed in situ. (11–12) Conches of *Strombus gigas*.

In the case of Las Varas, there seem to have existed different spheres of daily life and appropriation of natural resources which were defined by gender. Phallic- or vagina-form objects (e.g. Figs 8.8b and 8.8c) carved from mica schist slabs—replacing the schist winged pectorals (e.g. Fig. 8.8a) found in the first and second ML—usually found in the upper layers of the site associated with domestic refuse, seem to indicate a gender-based differentiation. The slabs may be related to the possible existence of male or female spheres in the appropriation of natural resources, and whose exchange among gender groups was mediated at the collective hearth. Consequently, could the male or female raw aliments become a different social category, a collective food, or the expression of another quality of gender?

As demonstrated in the analysis of the modes of life of bands from northeastern Venezuela, organic solidarity is not an *a priori* characteristic of the community of gatherers, hunters and fishers. On the contrary, it is a characteristic that has to be socially constructed, consensually accepted, and promoted as a requisite to achieve a stable and sedentary life. The transformation of the social relations of production into one of reciprocity guarantees the permanence of the labour force within the domestic units of production. The solution to the economic precariousness of the hunter-gatherer society was the controlled production of food.

TECHNICAL TRADITIONS AND SOCIAL RELATIONSHIPS AMONG THE EARLY HUNTER, GATHERER AND FISHER GROUPS IN EASTERN VENEZUELA

The data from work carried out in the Gulf of Paria demonstrate that the use of stone tools in eastern Venezuela can be dated, among the coastal populations, to between 7000 and 6000 BP, according to Veloz Maggiolo (1976) and Harris (1976). On the Island of Trinidad they can be dated to *c.* 8000 BP. Nonetheless, our current research at the Lower Caroní River, Lower Orinoco, indicates that rustic quartzite

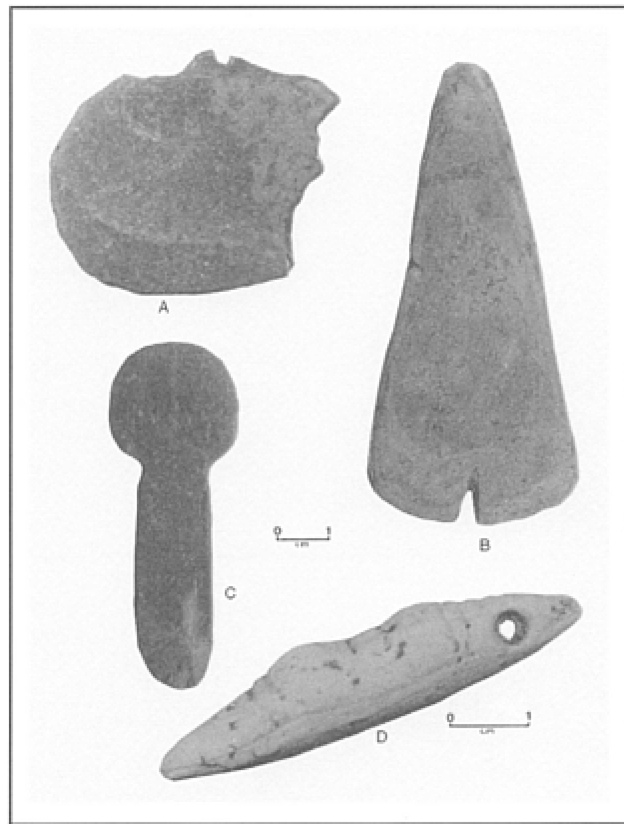


Figure 8.8 (a) Fragment of winged pendant in mica schist. (b) and (c) Vagina-form and phallic carvings in mica schist, Guayana shell midden. (d) Biomorph conch carving, Las Varas shell midden (after Sanoja and Vargas Arenas 1995).

choppers and flakes related to the Caroní Tradition (Sanoja *et al.* in press), similar to those present in the first and second ML sites, were perphaps being manufactured and utilised in the area in the Early Holocene. The chronology for Brazil assigns lithic industries to between 12,500 and 8000 BP (Schmitz 1987). Furthermore, radiocarbon dates obtained by Barse (1990) in the Upper Orinoco point to a date of 10,000 BP for preceramic sites associated with flakes and rustic stemmed points in crystalline quartz reminiscent of the complex of scrapers, drills and stemmed projectile points in crystalline quartz and jasper found by Rouse and Cruxent (1963) at Canaima site and by our team at the Lower Caroní sites we consider as part of a wider regional tradition we have nominated the Guayana Tradition (Sanoja *et al.* in press). It is conceivable that bands of early hunter-gatherers from the Orinoco—possibly related to the numerous groups encountered there by the Spaniards in the seventeenth century—were already living in the Orinoco Valley in very ancient times. It is also possible that the climatic changes that seem to have occurred in the Lower Orinoco savannahs around 8000 BP (Steyermark 1982: 214–21) forced some bands of hunter-gatherers to move northwards to the coastal regions of northeastern Venezuela and settle around the expanding mangrove forests.

The technique for manufacturing stone tools in Paria, particularly among the peoples related to the first and second ML, is characterised by the violent fracture of large nuclei of hard quartzite sandstone, jasper

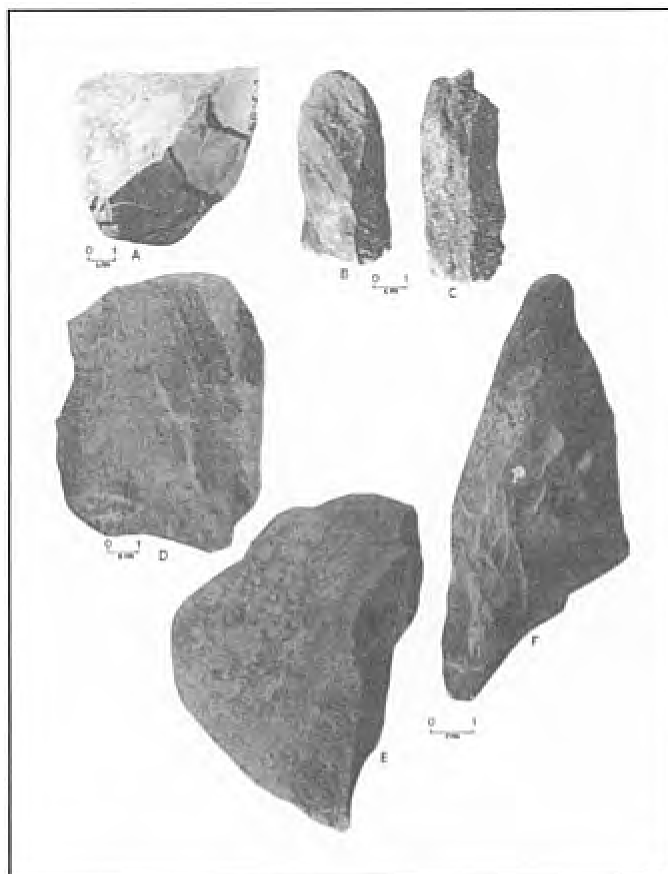


Figure 8.9 (a) Chopper, Ño Carlos site. (b) and (c) Unifacial artefacts, scrapers and burins. (d) and (e) Flakes used as scrapers. (f) Pyramidal tool, Guayana shell midden (after Sanoja and Vargas Arenas 1995).

and other types of stone, in order to obtain flakes that were generally used without any other kind of intentional transformations (Figs 8.9a, 8.9d and 8.9e). In a few cases flakes were modified with secondary percussion to trim the edges or modify the shape of the tools to adapt them to a particular use as scrapers or burins (Figs 8.9b and 8.9c). Round pebbles were also used, with minor modifications, as hammers, pounders, mortars, and net sinkers (Fig. 8.10b), with stone slabs utilised as work surfaces. A particular type of pyramidal-shaped tool, manufactured by flaking a primary or secondary nucleus, is characteristic of all early sites until 4600 BP (see Fig. 8.9f). The technical analysis of the pyramidal tools points towards their utilisation as a type of multifunctional tool for cutting or drilling. Soft sandstone nuclei were utilised as abraders for the manufacture of wood artifacts, particularly spears, or to trim the surface of rods used for various tasks. The non-specialised character of the tool complex and its spatial location within the domestic space in the first and second ML—not being related to any particular context—suggests that they may have been collective tools, discarded after having been used by one individual for one function and picked up by another to be used in a different way. For instance, net sinkers were used simultaneously to crush haematite while flakes seem to have been used to peel off the cortex of tree trunks, as knives, and for other purposes.

Shell artifacts from Manicuare (Cruxent and Rouse 1961), a sub-mode of the second ML, seem to represent a more specialised use of tools (Fig. 8.10 a), like the gouges clearly indicated for the working of bone or wood, including the manufacture of projectile points. Stone artifacts represented include not only

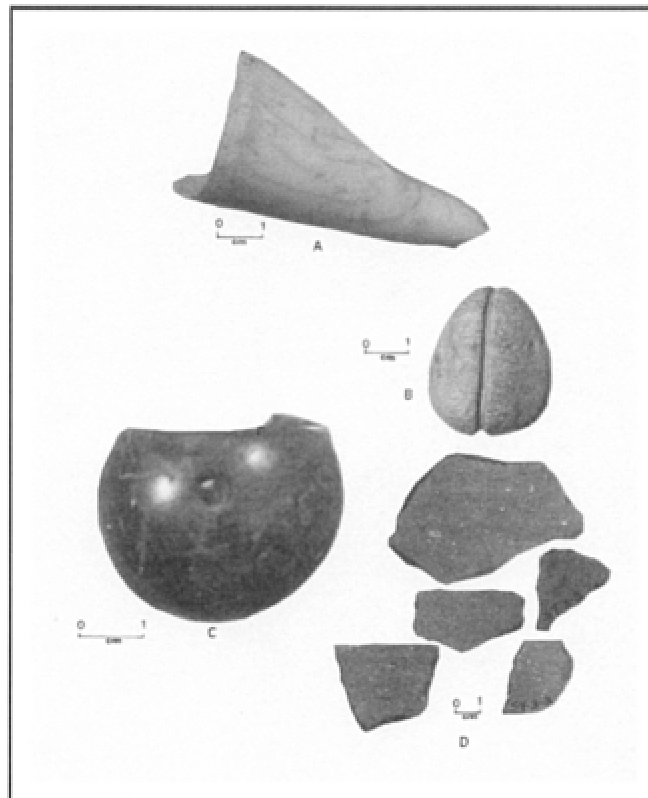


Figure 8.10 (a) Conch gouge, La Aduana shell midden, Cubagua Island. (b) Stone net sinker. (c) Polished stone bowl, Las Varas shell midden. (d) Pottery fragments, Guayana shell midden (after Sanoja and Vargas Arenas 1995).

cylindrical stones, anvils and pounders, but also possible net sinkers, bifacial flaked scrapers and stemmed projectile points in crystalline quartz (see Sanoja and Vargas Arenas 1995: pl. 6.5 and fig. 15.1). Of particular significance is the presence of extensive workshops to work shell or stone, located at the vicinity of the main sources of raw material, as is the case at Manicuare, Indismo and Laguna Grande sites, in the Araya Peninsula (Sanoja and Vargas Arenas 1995). Exchange of raw materials, such as salt, haematite, serpentine, jasper and crystalline quartz, seems to have occurred among the people of the second and third ML who inhabited the Gulf of Paria and the Gulf of Cariaco (Sanoja and Vargas Arenas 1995: map 8). While salt may have been exploited by Manicuare people at the important salt works of Araya, quartz beds existing in the upper valleys of the Araya mountain ranges may also have been exploited for raw material (Sanoja and Vargas Arenas 1995: 329–32).

After 4600 BP, following the appearance of the third ML, the technical tradition based on the non-controlled fracture of stone nuclei gave way to another based on the abrading of stone nuclei. Purposefully designed stone mortars and conical pestles orientated towards a grinding function become popular (Figs 8.11b and 8.11c). Axes and adzes, together with net sinkers of various types and sizes made from modified river pebbles of chlorite schist, also make their appearance in domestic spaces (Figs 8.11a and 8.12a-d). Parallel to these changes, bone and wood became the basis for a specialised tool complex composed of arrows, spears and harpoon points, implying the utilisation of the bow or another device for throwing darts

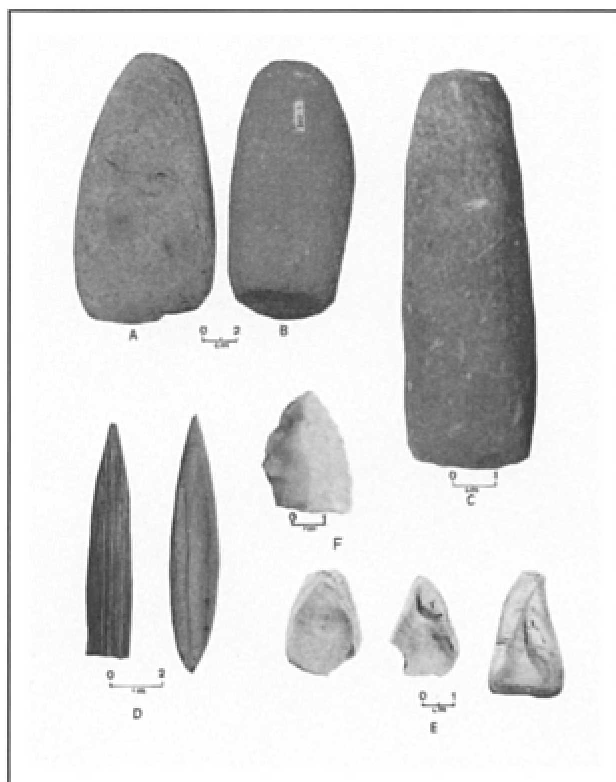


Figure 8.11 (a) Stone petaloid celt. (b) and (c) Conical pestles. (d) Wood and bone projectile points. (e) Modified and standard conch gouges, Las Varas shell midden, Paria. (f) Scraper in crystalline quartz, La Aduana shell midden, Cubagua Island.

from a distance, for hunting, fishing or warfare (Fig. 8.11d). Further characteristics are the presence of small stone bowls with highly polished surfaces (Fig. 8.10c), and intentionally cut bird femurs which could have been used as inhalers for the nasal ingestion of stimulants. Stone bowls are reminiscent in form of the small gourds used to keep the ‘yopo’ powder obtained from the *Piptadenia flavia* or *P. peregrina* used in rituals like the ‘cohoba’ that existed in Venezuela as well as in the Greater Antilles in pre-Hispanic times (Veloz Maggiolo 1972).

The distribution of tools in the domestic space suggests the adoption of a daily routine composed of organised functions for the production, transformation, distribution and consumption of goods within the household (Fig. 8.5). Most of the contexts of use are now located around or inside a central hearth that functioned as a pivotal space for the organisation of daily life. It seems probable, following the number of tools located in each successive habitation floor, that every family group possessed a determined number of such tools. The unequal quality in design and finishing found among tools apparently designed to accomplish the same function suggests that there were distinctions between the people who made them. Such a disparity in quality may be evidence either for a process of circulation, exchange or donation of tools manufactured by a skilled craftsman, or the differential manufacture of tools among the inhabitants of a single house.

As suggested by the spatial distribution and functional analysis of the tools found in the several contexts of usage and activity areas, a locus of authority based on the technical excellence of single individuals or groups of individuals may have begun to develop among the communities related to the third ML (Sanoja and Vargas Arenas 1995:299– 309). Such a situation may be due to the work processes in the first and second ML being possibly composed of non-socially integrated productive activities: the acquisition of natural resources for daily survival, their processing, distribution and consumption could be done either by one individual or a group of individuals without the necessary participation of the rest of the family unit or the entire band. In this context, a locus of authority would not have developed since it was not socially necessary in order to accomplish the routines of daily life. In the third ML, on the contrary, the technical and spatial diversification of the work processes, as well as the necessity of planning the immediate, medium- and long-range social objectives implied by activities such as the collecting of bivalves and gastropods, fishing with arrows, catching fish with individual or collective nets, hunting aquatic or terrestrial mammals, the tendering of plants, and cultivation, required a different codification and organisation of social relationships. Social relations in the third ML were possibly structured around a collective locus of authority composed of all those who excelled in one activity. Authority may have been limited to the moment an individual performed the activity in which he or she was considered the most able, returning to the status of a 'commoner' when such activity ceased.

Exchange of raw materials or finished goods is a further characteristic of the third ML. As in the first and second MLs, haematite seems to have been obtained by exchange with groups living in the Araya Peninsula. Around the close of the second millennium BC there are indications at Las Varas site of types of shell or conch artifacts such as 'modified gouges' (Fig. 8.11e), as well as fragments of *Cassis sp.* and anthropomorphic pendants made with the shell of the *Strombus gigas* (Fig. 8.8d), both possibly imported from the Araya Peninsula or Cubagua Island around 3570–3550 BP (Sanoja and Vargas Arenas 1995). Around 2450 BP the archaeological record at the site of Pedro García (Cruxent and Rouse 1961), located on the coast of Anzoátegui State, 200 km west of Las Varas and the Araya Peninsula, indicates the association of stone conical pestles and stone platters similar to those from Las Varas, with shell gouges similar to those manufactured at Manicuare and Cubagua Island. Stone conical pestles and round platters were also found by Cruxent and Rouse (1961) at the Michelena site, Lake Valencia, Aragua State, indicating the extension of human populations related to the third ML towards the north central coast of Venezuela, and with them techniques for tendering plants and processing vegetables, at the close of the first millennium BC.

CAUSATIVE FACTORS IN THE ADOPTION OF CULTIVATION IN NORTHEASTERN VENEZUELA

The study of the historical processes that occurred in northeastern Venezuela between 7000–6000 and 2000 BP show that the cyclical changes affecting the climate and the coastal relief of the region created conditions that allowed some bands of marine hunters and gatherers to settle at the intersection of ecosystems with different qualities and potentialities. Considered together, the ecosystems (coastal lagoons surrounded by mangrove forests, coastal valleys, and the temperate or semi-deciduous forests of the coastal range) represented an important concentration of natural resources and raw materials which were predictable for the extractive production of foods and other goods necessary to sustain human life. The people of the first and second MLs chose the short-term exploitation of, and adaptation to, a particular ecosystem as a closed system, with a minimal investment of human labour. Such a strategy hindered them in understanding the advantages of exploiting the ecosystem as an open system, as the people of the third ML did by reworking and improving the organisation of their productive forces and investment of labour. A

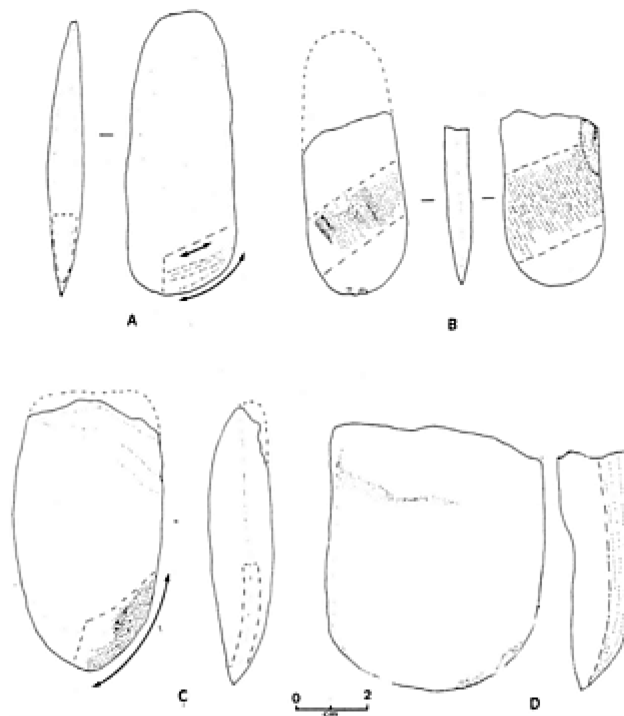


Figure 8.12 (a), (b), (c) Celts showing abrasion areas due to utilisation. (d) Stone adze showing indication of abrasion (after Sanoja 1989a).

similar proposal has been put forward by Higham and Maloney (1989:662) in their paper on coastal adaptation and sedentism in prehistoric Southeast Asia:

> Where food resources are predictable, sufficient, and storable, human behaviour in burgeoning sedentary communities can expand their horizons, develop complex ranking behaviour, and accumulate status and obligations. New demands are made on the creation of goods to signal such status…it is immaterial whether the plants found [at Khok Phanom Di] were cultivated or not, or whether animal behaviour was yet modified by people to the point of herd maintenance.

The authors indicate that domestication does not necessarily imply the management of plants and animals only, but rather the domestication of people as well. Favourable external conditions do not mechanically impose social and cultural adaptations: only internal conditions, as we have stated (Sanoja and Vargas Arenas 1995), can initiate socio-cultural changes. The potential for historic transformation is not generated only by the location of the social group in a natural environment rich in natural resources, but by that group's capacity to appreciate or grasp the operational interconnection among the environment's different niches and ecosystems, as well as its ability to organise collective labour in order to cope, in a simultaneous or deferred way, with its exploitation (Flannery 1968). In other words, the capacity must exist to define the natural environment socially as a means to, as well as the object of, social work. This way of organising social labour presupposes and therefore is the origin of sedentarisation. Sedentarisation, in turn, requires and

generates regular intersubjective and interpersonal relations that may become intensified, thus generating conflicts inside the social groups through the appearance of loci of authority within determined sectors of the network of intersubjective relations. A type of environment bountiful or scanty in natural resources, but appropriated or exploited through a collective body organised in such a manner, could deepen the social conflicts and transgressions in such a way that the locus of authority could expand or be reinforced in order to solve them. In other words, the institutionalisation of the widened social solidarity materialised in the development of more complex intra- and inter-society circuits of exchange (Sanoja and Vargas Arenas 1995). Therefore, the essential issue would be to consider the cultivation or the domestication of wild species not as an autonomous and causative variable, but rather the increasing domestication of humans through the conditions of sedentism and territoriality, the reworking of their social relations and the general reordering of their productive forces, as the necessary condition for the development of plant and animal domestication. In this respect, we agree with Chase (1989:42–3) in considering the human-plant relationship as time (and space) specific, and involving human social action in a complex environment.

A further factor in understanding the social and cultural changes undergone by the populations of the third ML is the abandonment of the winged mica schist breastplates in favour of anthropomorphic phallic and vaginal-form representations. Simultaneously, the tradition of nonspecialised crude flakes and nuclei of quartzite sandstone was progressively being replaced by a complex of specialised tools, such as axes, adzes, conical pestles, stone mortars and plates, abraders and polishers manufactured from different kinds of stone, a diversified typology of wood and bone arrow and spear points, the use of the bow, and net sinkers of different types and sizes that suggest a knowledge of cord-making and weaving techniques.

The growing evidence of tools related to plant cultivation indicates a rupture with the mode of production of the hunters, gatherers and fishers, and an orientation towards the controlled reproduction of vegetable species. The technical capacity to manufacture production tools with homogeneous surfaces and efficient active parts specialised in cutting, powdering, hammering, drilling and removing parts of stable solids (wood, bone, fibres, soils, etc.) by way of the abrasion and the polishing of stone surfaces, appears sporadically in the early populations of hunters, gatherers and fishers of northeastern Venezuela and the Island of Trinidad from 8000 to 7000 BP (Veloz Maggiolo 1976). Since antiquity there may have existed a process similar to the one Rindos (1984) has called 'accidental domestication', or what we considered to be the experimental cultivation of certain plants endemic to the Paria region. Rindos (1984:257) also notes that 'the origin of agriculture preceded agricultural subsistence'. Edible roots such as pericaguara *(Canna edulis),* ocumo *(Santosoma sagittifolium)*, lairen *(Callathea alluia),* and yucca *(Manioc sculenta)* may have been collected and later on grown within artificial niches of fresh or humid soils prepared by the slash, or slash and burn, techniques (Sanoja 1989a). The technique continued to be used in the lagoons, river banks, and swampy areas that remained in the Paria and Cariaco coastal area after the last regression of the sea.

The reciprocal relationship between plants and human communities must have been affected by changes in the environment due to the changes in sea-level. Between 5000 and 4000 BP the distribution of mangrove forests must have been modified to a certain extent by a reduction in the extension of the lagoons and estuaries, owing to a possible temporal regression of the sea-level, the Crane Key Emergence (3000 BP; Fig. 8.1), followed by a transgressive period, and the Paranagua Submergence (3000–2000 BP; Fairbridge 1976). However, instead of abandoning the process of tending plants, the populations of the third ML seem to have intensified its practice (Fig. 8.1) at the same time as developing specialised techniques for terrestrial hunting, fishing and gathering in the lagoons (Sanoja 1989a). Such a situation is expressed in the quality and magnitude of the social changes that appear from 4600 BP, reflected in the presence of villages or collective units of habitation more stable than the previous camps and wind-breakers, as well as in the

progressive specialisation in production tools, particularly of polished axes, which may be observed towards the end of the Las Varas local sequence (Sanoja and Vargas Arenas 1995).

Sedentism appears to have been the necessary condition for the appropriation and use of the agglomerated complex of ecosystems and ecological niches. It was also the result of the capacity of human communities to develop and maintain mechanisms of social solidarity capable of retaining the permanent availability of a labour force, identified through relations of simple co-operation. This process seems to represent the last phase of the development of hunter-gatherers in northeastern Venezuela, which may have ended between the beginning of the last millennium BC and 600 BC.

We do not disregard demography as being among the causative factors in the intensification of agriculture. As stated above, sedentism was generated as a necessary precondition for the systematic appropriation of the natural resources existing in the aggregated ecosystems of the Gulf of Cariaco. The stabilisation of the population must have been the result of a necessary relationship between the size of the labour force and the objective possibilities of augmenting the natural reproduction of the biotic components of the ecosystems and ecological niches, until one controlled form of reproduction subordinated all the others when it was revealed as capable of offering results in predictable lengths of time and quantities, according to the quality and amount of social labour invested.

The society of the ancient hunter-gatherer population of Paria reflects their ability to progressively reprogramme their economy, their technology, and social organisation to positively utilise the changing ecological conditions that occurred after the end of the Pleistocene. Their main innovations were the creation of sedentary or semi-sedentary enclaves; the seasonal scheduled appropriation of the diverse natural resources through the intensification of fishing and selective shell-collecting; lake, river and terrestrial hunting, using bows, arrows, harpoons, spears and nets; canoes and navigation techniques; stone or shell gouges for wood-working; axes to prepare the fields for cultivation; and a complex of stone artifacts, such as manos, conical pestles, mortars, dishes or round metates, to transform vegetable resources. A pipe stem and several fragments of plain pottery possibly containing shell or feldspar and belonging to an open kind of vessel (Fig. 8.10d), were recovered in the upper layer of the Guayana shell midden. Charcoal collected in this layer, although not necessarily related to pottery, was radiocarbon dated to 3500±90 BP (Sanoja and Vargas Arenas 1995:167–8). As far as ideology is concerned, the presence of phallic- and vaginal-form stone carvings, as well as lithic mini-vessels possibly used to perform nasal ingestion of stimulants, points to the existence of rituals related to the production, distribution, exchange and consumption of goods, and a relationship between human beings and the realm of the supernatural.

The tendering and cultivation of plants appears to have developed independently in diverse regions of the globe out of a matrix of huntergatherer populations. The intensification and consolidation of plant cultivation was also due to the parallel intensification of contact among human groups with dissimilar levels of socio-historical development (Fig. 8.13). In the case of Paria, such contact grew in intensity near the beginning of the Christian Era, when the ceramic-producing Barrancoid (Sanoja 1979) and Ronquinoid (Vargas Arenas 1981) groups—already living in the Middle and Lower Orinoco—moved into northeastern Venezuela displacing and/or culturally absorbing the indigenous inhabitants. The new modes of life that rapidly developed out of this process were based on the cultivation of bitter manioc, fishing, shell-gathering, and terrestrial hunting (Vargas Arenas 1979). Polished stone tools for agriculture, rare in the Middle and Lower Orinoco but abundant among the peoples of Paria, came into common use among the peoples of the so-called Saladoid tradition of northeastern Venezuela (Vargas Arenas 1979; Sanoja and Vargas Arenas 1983:235–7), particularly the so-called 'petaloid' celts manufactured by the aboriginal coastal groups of Paria (Figs 8.11a, 8.12a, b and d).

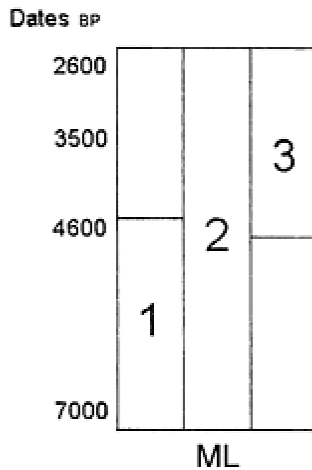


Figure 8.13 Chronological table of modes of life of the shellgatherers, hunters and fishers in Paria.

Polished tools may indicate that the newly arrived groups eagerly accepted the agricultural knowledge developed by the groups of the third ML, including, perhaps, the cultivation of manioc. It seems unlikely that the Ronquinoid and Barrancoid took with them the stems of manioc already domesticated in the Orinoco, or started a secondary domestication process. Since the differentiation of the *Manihot sculenta Crantz* into sweet and toxic varieties does not seem to be a valid taxonomic criterion, but rather a process explained by the local characteristics of soils (Sanoja *et al.* 1997:109–15), the difference between both varieties can be locally established according to certain morphological criteria. According to our own experience at the Campoma Lagoon area, present-day farmers can distinguish between sweet and toxic manioc in their own plot, but could not be sure in somebody else's plot. Consequently, the real domestication of manioc must have occurred when people discovered the possibility of producing clones of the same variety (sweet or bitter) by forcing the plant to reproduce with stakes (Sanoja *et al.* 1997:112). More plausibly, the Orinocan newcomers found the plant already cultivated and domesticated in Paria and merely introduced new techniques to transform the bitter manioc roots into cassava. This would also explain the swift expansion of Saladoid people to the Lesser and Greater Antilles, taking advantage of the knowledge of high seas navigation and human contacts established by the peoples of the second and third ML since the third millennium BC. It is probable that by that time the preceramic populations of northeastern Venezuela had reconnoitred most of the Lesser Antilles and had developed contacts with other hunter-gatherers already living in the Dominican Republic, Puerto Rico and Cuba (Sanoja 1989b: 531–2; Sanoja and Vargas Arenas 1995; Veloz Maggiolo 1991:71–9), and had diffused the knowledge of plant tendering and cultivation using local natural resources. The early use of edible plants, such as *Zamia integrifolia* around 3840±130 BP (Sanoja 1989b:528–33; Veloz Maggiolo 1991:97) in the Dominican Republic, through a technical process of transformation similar to that of bitter manioc among the hunter-gatherer population, may relate to a technology transfer via the Venezuelan immigrants. The immigrants may also have helped to introduce into the Greater Antilles the technical concepts for the manufacture of conical pestles, stone vessels, manos and metates, shell gouges and axes, stone axes and adzes, as well as the social and technical matrix upon which the pre-Columbian sedentary Antillean societies later developed.

ACKNOWLEDGEMENTS

This research was sponsored by the National Geographic Society, to which the authors are extremely grateful.

REFERENCES

Barse, W. (1990) 'Preceramic occupation in the Orinoco River Valley', *Science* 250:1388–90.

Chapman, V.J. (1977) 'Introduction', in V.J.Chapman (ed.) *Wet Ecosystems of the World,* New York: Elsevier. 1–27.

Chase, A.K. (1989) 'Domestication and domiculture', in D.R.Harris and G.C.Hillman (eds) *Foraging and Farming: The Origins of Plant Exploitation,* London: Unwin Hyman (One World Archaeology 13). 42–53.

Clapperton, C. (1993) *Quaternary Geology and Geomorphology of South America,* New York: Elsevier.

Cruxent, J.M. and Rouse, I. (1961) *Arqueología Cronológica de Venezuela,* Washington DC: Pan American Union (Estudios Monográficos 6).

Dacal Mouré, R. (1972) 'El estudio de los grupos amerindios tempranos en el archipiélago cubano', *Revista Dominicana de Arqueología y Antropología* 2, 2–3:23–35 (July-December, January-June, Year 2).

Fairbridge, R.W. (1976) 'Shellfish-eating preceramic Indians in coastal Brazil', *Science* 191:353–9.

Flannery, K. (1968) 'Archaeological systems theory and early Mesoamerica', in B.Meggers (ed.) *Anthropological Archeology in the Americas,* Washington DC: The Anthropological Society of Washington.

Harris, P.O.B. (1976) 'The preceramic period in Trinidad', in *Proceedings of the First Puerto Rican Symposium on Archeology,* San Juan: Fundación Arqueológica, Antropológica e Histórica de Puerto Rico. 33–64.

Hendry, M. and Digerfeldt, G. (1989) 'Palaeogeography and palaeoenvironments of a tropical coastal wetland and offshore shelf during Holocene submergence, Jamaica', *Palaeogeography, Palaeoclimatology, Palaeoecology* 73: 1–10.

Higham, C.Y. and Maloney, B. (1989) 'Coastal adaptation, sedentism, and domestication: a model for socioeconomic intensification in prehistoric Southeast Asia', in D.R.Harris and G.C.Hillman (eds) *Foraging and Farming: The Origins of Plant Exploitation,* London: Unwin Hyman (One World Archaeology 13). 650–66.

Koldewijn, B. (1958) *Sediments of the Paria-Trinidad Shelf. Reports on the Orinoco Shelf Expedition,* vol. 3, The Hague: Mouton.

Leroi-Gourhan, A. (1971) *El Gesto y la Palabra,* Caracas: Universidad Central de Venezuela (Colección Tema 114, Ediciones de la Biblioteca).

Lugo, A. and Snedaker, S. (1974) 'The ecology of mangroves', in R.F.Johnston (ed.) *Annual Review of Ecology and Systematics* 5:39–61.

Nota, D. (1958) *Sediments of the Western Guiana Shelf. Reports of the Orinoco Shelf Expedition,* vol. 1, Wageningen: Agricultural University.

Nuñez Jiménez, A. (1983) *Pedro en Laberinto de las Doce Lenguas,* La Habana: Editorial Gente Nueva.

Osgood, C. (1942) *The Ciboney Culture of Cayo Redondo, Cuba,* New Haven: Yale University Press (Publications in Anthropology 25).

Prous, A. and Piazza, W. (1977) *Documents pour la préhistoire du Brésil meridional,* Paris: École des Hautes Études en Sciences Sociales (Cahiers d'Archéologie d'Amérique du Sud).

Rindos, D. (1984) *The Origins of Agriculture,* New York: Academic Press.

Roa, P. (1988) 'Estudio preliminar de las condiciones físico-químicas de la Laguna de Unare', in *Actas de la III Reunion de Geomorfólogos,* Caracas: Facultad de Humanidades y Educación, Universidad Central de Venezuela. 71–91.

Rouse, I. and Cruxent, J.M. (1963) *Venezuelan Archaeology,* New Haven: Yale University Press.

Ruppé, R. (1980) 'Sea level rise and Caribbean prehistory', in S.Lewenstein (ed.) *Proceedings of the Eighth International Congress for the Study of the Precolumbian Cultures of the Lesser Antilles*, Tempe, Arizona: Arizona State University (Anthropological Papers 22). 331–7.

Sanoja, M. (1977) *Los Hombres de la Yuca y el Maís,* Caracas: Editorial Monte Avila Latinoamericana.

—— (1979) *Las Culturas Formativas del Oriente de Venezuela: la Tradición Barrancas del Bajo Orinoco,* Caracas: Biblioteca de La Academia Nacional de la Historia (Serie Estudios, Monografías y Ensayos 6).

—— (1989a) 'Origins of cultivation in the Gulf of Paria', *RESEARCH (National Geographic Society)* 5, 4: 446–58.

—— (1989b) 'From foraging to food production in north eastern Venezuela and the Caribbean', in D.R.Harris and G.C.Hillman (eds) *Foraging and Farming: The Origins of Plant Exploitation,* London: Unwin Hyman (One World Archaeology 13). 523–34.

—— (1992) 'Wetland ecosystems and the management of cultural heritage', in *Wetland Management in the Caribbean and the Role of Forestry and Wetlands in the Economy. Proceedings of the Fifth Meeting of Caribbean Foresters, and The First Meeting of Ministers of Agriculture to Consider the Economic Role of Forestry at Saint Lucia,* New Orleans: The Institute of Tropical Forestry and the Caribbean National Forest, Rio Piedras, Puerto Rico. 66–73.

Sanoja, M. and Vargas Arenas, I. (1983) 'New light on the prehistory of eastern Venezuela', in F.Wendorf and A.Close (eds) *Advances in World Archeology,* vol. 2, New York: Academic Press. 205–44.

—— (1995) *Gente de la Canoa: Antiguos Modos de Vida Apropiadores del Noreste de Venezuela. 6000 AP–1991 DC,* Caracas: Editorial Tropikos.

Sanoja, M., Bencomo, C. and Aguila, T. (1997) *La Microhistoria del Bajo Caroní,* Caroní: Corporación Venezolano de Guayana, Electricidad del Caroní.

Schmitz, P.I. (1987) 'Prehistoric hunters and gatherers of Brazil', *Journal of World Prehistory* 1, 1:53–125.

Steyermark, J. (1982) 'Significance of savanna vegetation in the Amazon territory of Venezuela', in G.T. Prance (ed.) *Biological Diversification in the Tropics,* New York: Columbia University Press. 221–44.

Van Andel, T.H. (1967) The Orinoco delta', *Journal of Sedimentary Petrology* 37:297–330.

Van Andel, T.H. and Postma, H. (1954) 'Recent sediments of the Gulf of Paria: reports of the Orinoco Shelf expedition', *Verhadelingen der Koninklije Nederlandse Akademie van Wetenschappen (Naturkunde)* 20:5.

Van Andel, T.H. and Sachs, P.L. (1964) 'Sedimentation in the Gulf of Paria during the Holocene Transgression: a subsurface acoustic reflexion study', *Journal of Marine Research* 22, 1:30–50.

Vargas Arenas, I. (1979) *La Tradición Saladoide del Oriente de Venezuela: La Fase Cuartel,* Caracas: Biblioteca de la Academia Nacional de la Historia (Serie Monografías y Ensayos 6).

—— (1981) *Investigaciones Arqueológicas en Parmana. Los Sitios de La Gruta y Ronquín, Edo. Guárico, Venezuela,* Caracas: Biblioteca de la Academia Nacional de la Historia (Serie Monografías y Ensayos 20).

Veloz Maggiolo, M. (1972) *Arqueología Prehistórica de Santa Domingo,* Singapore: McGraw Hill Far Eastern Publishers.

—— (1976) *Medioambiente y Adaptación Humana en la Prehistoria de Santo Domingo,* vol. 1, Santo Domingo: Ediciones de la Universidad Autónoma de Santo Domingo.

—— (1991) *Panorama Histórico del Caribe Precolombino,* Edición del Banco Central de la República Dominicana.

West, R. (1977) 'Tidal salt marsh and mangrove formations of middle South America', in V.J.Chapman (ed.) *Wet Ecosystems of the World,* New York: Elsevier. 193–211.

Widmer, R.J. (1988) *The Evolution of the Calusa,* Tuscaloosa and London: The University of Alabama Press.

Chapter Nine
Tawantinsuyu
The frontiers of the Inca Empire

Rodolfo Raffino and Rubén Stehberg[1]

In memory of John Hyslop

INTRODUCTION

When Christopher Columbus first landed in the Caribbean islands, Tawantinsuyu, or the Inca Empire, was the largest indigenous state in the Americas which, by the late 1400s, had achieved its maximum territorial expansion in the Andean world. A quick glance at the achievements of the Inca shows a pre-industrial state that controlled approximately 1,700,000 km^2 and built more than 1,500 state edifices and *tambos* and between 20,000 and 25,000 km of state roads (*Capacñam*; see Fig. 9.1).

The Inca also constructed several large capital cities, such as Cuzco, in the sacred homeland of southern Peru, as well as Tomebamba and Huánuco Pampa in the northern provinces. The Pacific Ocean to the west, the tropical slopes of the Andes to the east, the present-day border between Colombia and Ecuador to the north, and the Cachapoal Valley in central Chile and the Uspallata Valley in northwest Argentina in the south marked the most distant frontiers of an ancient empire without equal in the pre-Columbian New World.

According to the established chronology of Tawantinsuyu (e.g. Rowe 1945, 1957), the Inca conquest began with Pachakuti in the mid-1400s (approximately AD 1438) and continued through the reigns of Thupa Inca (approximately AD 1471–93) and Wayna Capac (approximately AD 1493–1525), among others. In AD 1520, the discovery and conquest of Peru by the troops of Francisco Pizarro occurred at a time when the Inca Empire was divided by a civil war and by the dual leadership of Atawalpa in Quito and Huascar in Cuzco.

As an object of analysis, the Tawantinsuyu state has generated a large number of historical, anthropological, sociological and political treatises. It is one of the best-studied pre-Columbian cultures. Inca studies were initiated by chroniclers who took part in the first Spanish invasion in 1532. Soldiers like Miguel de Estete, Sancho de la Hoz, and Francisco de Jerez were the first Europeans to set eyes on the Cuzco Inca. In the early 1800s the archaeologist Alexander von Humboldt (1810) was the first European to describe Inca ruins in the Andean mountains.

Throughout the course of scholarly study of the Inca much polemical debate has been dedicated to the questions of how the Inca conquered so many ethnic territories in such a short period of time; the type of hegemonic influence the *Pax Inca* exercised over conquered ethnic groups; and state governing regulations in the incorporated territories. Such debates began in the mid-1600s in an ambience of antagonism produced by such pro-Tawantinsuyu chroniclers as Poma de Ayala, Blas Valera and Garcilazo de La Vega (Murra 1975). The above perspective was eventually contested by Sarmiento de Gamboa and Francisco de Toledo, who viewed the Inca state as a despotic and cruel apparatus.

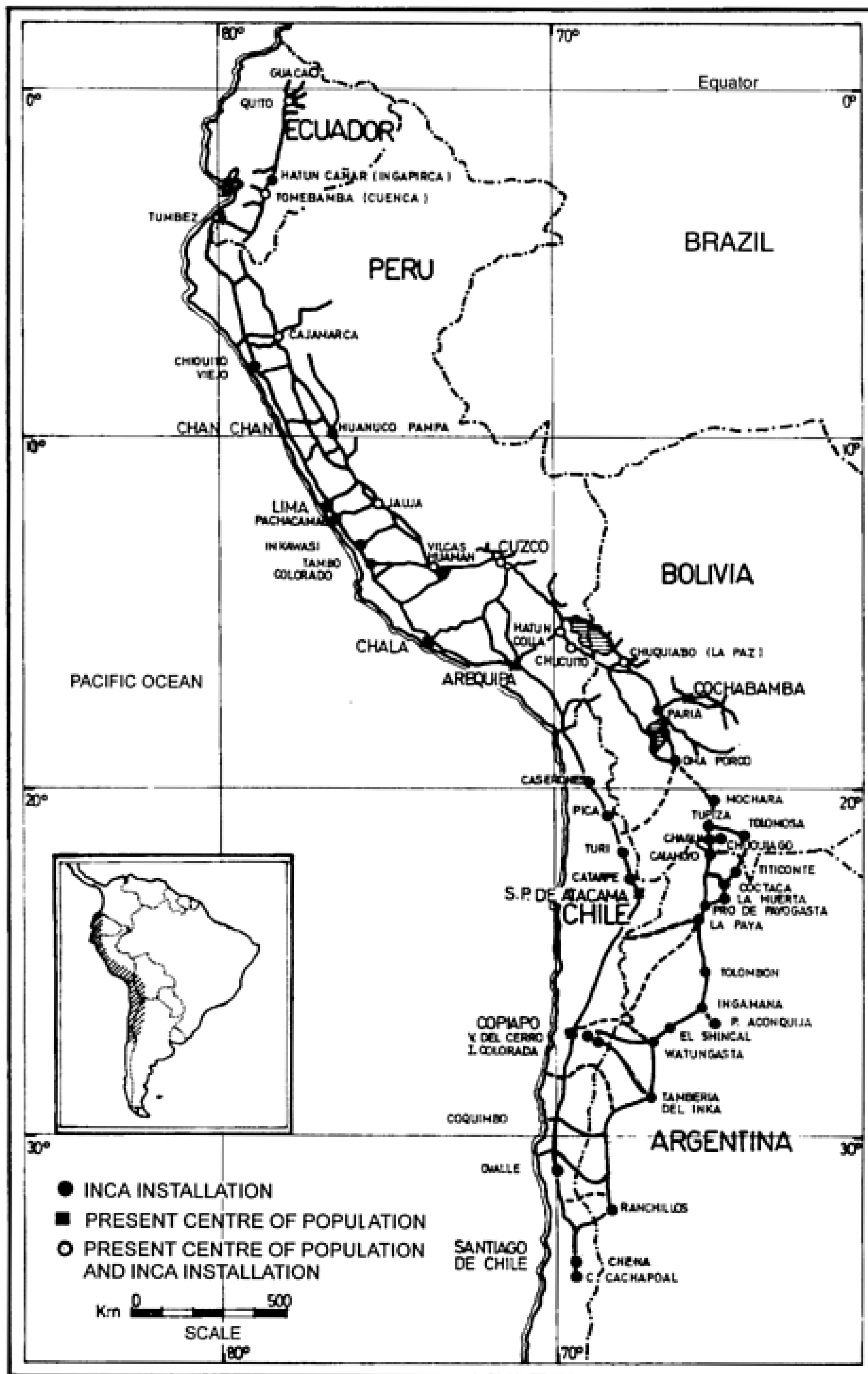


Figure 9.1 Map of Tawantinsuyu: general area and Inca roads at the time of the Spanish Conquest (based on Hyslop 1984, Raffino *et al.* 1986; Raffino 1988, 1993; Stehberg 1995).

In the present century, the Inca state has been interpreted primarily from various socio-economic viewpoints. Included are the socialist models of Baudin, Means, Mariátegui and Valcarcel, the oriental despotic (hydraulic) model of Wittfogel, the asiatic mode of production of Marx, Métraux and Godelier, and the feudal model of Soriano. More recently, the utopia model proposed by Moro has gained popularity, as well as several versions which consider both the Inca and European conquests. Valcarcel, Murra, Rowe and Pease are proponents of the latter model (see Wachtel 1973; Murra 1975; Espinosa Soriano 1978).

In short, a voluminous mass of written material exists on the 'Inca problem'. Until a decade ago most of this material focused on the epicentre of the Empire, Cuzco, and its surrounding environs. Little reliable and critical material was available on the peripheral areas of the state. Even less historical and archaeological information existed on the extreme northern, southern, eastern and western borders of the Empire, especially in areas such as the south-central altiplano of Bolivia, the boreal forest of Ecuador, the arid lands of northwest Argentina and central Chile, and the entire eastern border of the Andean mountains.

It is also important to realise that the Inca have produced a historical and social phenomenon that is esteemed by many of the present-day indigenous populations of the Andes. The Inca state model is the paradigm for many indigenous communities presently attempting to reinstate their territorial rights and inter-ethnic integration. The latter has been revitalised recently by the fifth centenary of Columbus' arrival in the New World. The Inca state was also the first socio-economic model copied by several South American nations when they gained independence from Spain (Argentina in 1816 and Bolivia in 1825, for example).

The purpose of this paper is to present the findings of recent archaeological studies which have been used to test several ethnohistorical hypotheses in the Kollasuyu region of the Empire. Also discussed are new ideas about the chronology of the Inca presence in the south. Finally, several generalisations are offered about the social organisation and political strategy of Tawantinsuyu.

FROM THE CUZCO EPICENTRE TO THE OUTER PERIPHERIES

Scholars investigating the Inca Empire are beginning to give more weight to the historical and archaeological records of the outer frontier or peripheral areas of the Inca state for a better understanding of the socio-economic relations between Cuzco and local populations. It has long been assumed that the stability and security of Tawantinsuyu largely depended on events taking place within its internal borders and not along its external frontiers (Dillehay and Netherly 1988). More recently, ethnohistorians and archaeologists alike are recognising that both frontiers were dynamic and optimal places for change and innovation; frontier situations brought about new solutions to both old and new problems and affected the entire socio-political organisation of Tawantinsuyu (Morris 1988). In specific regard to northwest Argentina and south-central Chile (between Copiapo and Maipo), Raffino (1982, 1993) proposed long ago that these areas should not be considered as marginal areas within the Empire but as integral and contributing parts of the Inca system.

Other issues relating to the frontier question also require attention. For example, what was the relationship between different ecological zones and the different socio-political organisations of their inhabitants? Some local populations within the Empire had only had a pre-chiefdom level of organisation and thus did not have the labour skills and social organisation which could be readily adapted to state needs. Did the Inca exercise direct or indirect control over these populations? Further, how widespread was ethnic mobility within state borders and what were its determining factors? What kinds of ethnic alliances and conflicts occurred within the state? How did the hegemonic behaviour of the state turn ethnic groups and

frontiers into *areas calientes* (hotly contested areas) which were diaphragm-like battle zones that expanded and contracted for prolonged periods of time.

The scholarly research generated by these and other questions is revealed by the surge of interdisciplinary meetings focused on the Inca Empire, such as those held recently in Bogota in 1985, in Buenos Aires in 1988, in Santiago de Chile in 1987 and 1989, in Mendoza in 1991, and in New Orleans in 1991. Scholars attending these meetings have agreed that much more attention needs to be given to the complexity and function of different types of 'frontiers' and to the development of explanatory hypotheses specific to each type in each region of the Empire.

The frontier problem has also stimulated more archaeological investigation in peripheral areas. In fact, for the first time in the history of Inca studies, as much attention is being given to the study of external frontiers as to the epicentre of state development in the highlands and on the coast of Peru and in the altiplano of Bolivia and southern Peru.

The northern frontier: the boreal forests of Colombia and Ecuador

At present, most researchers agree that the Inca did not have effective control of the southwestern highlands of Colombia, as suggested by the absence of state artifacts and architecture (Romoli 1977–8; Hyslop 1988). In the southern highlands of Colombia, Cieza de León, who knew the area well because he crossed it on foot, states that the Inca road ended in Guaca just north of the present-day border between Ecuador and Colombia. In this area and in the Angasmayo River and Pasto, the Inca conducted several military operations apparently without ever having established firm control over local populations.

In commenting on Inca activities along the Ecuadorean coast, Cieza de Leon (1962 (1553)) wrote that despite the absence of state bureaucrats, installations, and storage systems in the region some littoral ethnic groups sent gifts to the Inca lord in Cuzco. Although Hyslop (1988) has noted that two Inca kings, Thupa Yupanki and Wayna Capac, visited the coast, there is no hard evidence to suggest that the state directly or indirectly controlled the region. Some ethnohistorical evidence exists to suggest Inca incursions into the tropical forest of the coast. Furthermore, some Inca pottery sherds have been recovered in the area (Meyer 1976). Despite this evidence, however, there is still no consensus among specialists as to whether Tawantinsuyu had effective control over the Ecuadorean coast (Murra 1946; Hyslop 1988).

As for the highlands of Ecuador, Idrovo (1988) has pointed out that the Inca had serious problems in conquering the Cañari of the Cuenca Valley (Tomebamba). As a result, the Inca searched for new and friendly areas through which they could build their roads around the Cañari and proceed northward along the western side of the cordilleras of Cajas and Jubones. It was from these areas that the Inca launched their invasion of the Isla de Puna, which was the economic centre of *Spondylus* production. The Inca were well aware of the religious and commercial importance of the *Spondylus* in the Andean world.

Idrovo (1988) also believes that the Inca's military dominance in the southern region of Ecuador developed in different stages. In the first stage, the Inca failed to conquer the Cañari. As a result, the state spent a considerable amount of time in the Cuenca Valley building several large state installations, such as Tomebamba, Hatun Cañar *(Ingapirca),* Dumapara, and Canaritamba, Tomebamba, the centre of military operations in the region, was the permanent residence of Thupa Yupanki, and eventually became the first real frontier of the Inca state in the northern provinces. In the second stage, Yupanki's successor, Wayna Capac, reconquered the lower elevated lands of western Ecuador, as well as the eastern sections of the present-day Provinces of Azuay and Cañar. The confederated nations of the Pastos, Cayambis, and Imbayas to the north were conquered last.

Based on ethnohistorical documentation and on a new linguistic approach, Salomon (1988) has demonstrated the cultural and linguistic homogeneity of the pre-Inca populations of the Quito area. Inca domination in the area was characterised by the adoption of many Kechua loan words by local groups and by a restructuring of local ethnic territories to fit the state dual system of *hananl hurin* (overhead/ underneath), which itself was readapted to cope with the chiefdom-like organisations of the interior 'provinces'. Eventually, Inca influence transformed the region from a military frontier to a productive and integral part of the state system.

The eastern frontier: the tropical flanks of the Andes

The eastern frontier of Tawantinsuyu seems to have coincided with the yungas or tropical forested slopes and foothills of the Andean mountains. This frontier was more a cultural and ecological border than a political one. Unfortunately, the archaeology of this region is poorly known and little can be said about the Inca presence; except for a few defensive sites the expansionistic infrastructure of the state apparently disappears abruptly in the yungas (Raffino 1982).

Several decades ago, Strube (1963) suggested that Inca roads were probably built in the tropical areas east of Chachapoyas, Huánuco Pampa, and Cuzco, but there is no archaeological evidence to substantiate his claim. Along similar lines, Hyslop (1988) hypothesised that the Inca frontier in eastern Bolivia and Argentina was very irregular and unpredictable, penetrating some yungas zones but probably never controlling them. It is possible that some tropical groups along the flanks of the Andes co-operated with the Inca but were never really incorporated into the state system.

In the Quebrada de Humahuaca in northwest Argentina, the Inca exercised direct control over the region and installed their own political leaders. In this area, state economic activity was directed primarily toward the lowland yungas and chaqueño forest. Archaeological research in these areas has demonstrated the existence of several lateral state roads that extend from the Quebrada to the yungas. Also located in the area are three state military installations *(pukarás),* Calilegua, Puerta de Zenta and Cerro Amarillo. The presence of these defensive sites may suggest that the state strategy was to establish firm control of the yungas prior to embarking on a military campaign in the Chiriguano region to the east (Raffino *et al.* 1991:122).

A similar situation seems to have occurred along the eastern flanks of Ecuador where a chain of *pukarás* extend from Gualaceo in the highlands, passing through Chordeleg and Sigsig, down to the lowlands in the east. These fortresses probably defended state installations and conquered territories against Jibaro attacks (Idrovo 1988), and can be compared to the sites of Cerro Amarillo, Puerta de Zenta and *Pukará* of Aconquija (Fig. 9.2).

The eastern flank of Bolivia also seems to have been protected by a series of state fortifications — Oroncotá, Santa Elena, Culpina, Condorhuasi and Incallajta. The farthest point east conquered by the Inca was Samaypata near Santa Cruz de la Sierra, where several state edifices are located on a large rock outcrop. Although unconfirmed archaeologically, it is likely that these and other fortifications make up a string of fortresses which extended along the entire eastern frontier of Bolivia.

In sum, despite the presence of state fortifications along the eastern slopes of the Bolivian and Argentinian Andes, the area was probably always politically unstable and susceptible to attack by lowland groups. As Nordenskiöld (1917) pointed out, the Guaraní were able to invade Inca territory just before the arrival of the Spanish, and there were probably other invasions as well.

In northwest Argentina, Lorandi (1988) has postulated the presence of two unstable border areas. One was located beyond the state frontier in the eastern lowlands where the Lules and Chiriguanos resisted the Inca, and the other situated within state territories and associated with the Argentine Diaguita, many of



Figure 9.2 *Pukará* of Aconquija (Argentina) built by the Incas on the eastern border of the Andes.

whom were not incorporated into the state. The archaeological record of the Diaguita area seems to refute Lorandi's hypothesis. The record suggests that the Inca and local Diaguita populations had a symbiotic and co-operative relationship. The presence of only a few state fortresses suggests that local populations did not strongly resist state dominance. The co-residence of the Inca and Diaguita in local settlements (Fig. 9.3), such as Tilcara, La Huerta and La Paya, and the presence of Inca and Diaguita skeletons in the same cemeteries and of Inca-Diaguita ceramic styles also suggest a strong co-operative relation. Also important is the presence of prestigious Cuzco-design patterns on Diaguita artifacts made of bronze, blue lapis, and wood (Raffino 1982).

There is also ethnohistorical (the chronicler Lozano) and archaeological evidence (see Raffino *et al.* 1991) to indicate that Lorandi's first border, the external state frontier, was defended by professional soldiers from Chicha and Chuis. These soldiers were imported like *mitimaes* by the Inca and installed in the Bolivian highlands near Humahuaca.

It should be mentioned too that the colonisation of northwest Argentina was characterised by the construction of 140 state settlements and numerous lateral roads. No less than half a dozen of these installations (including El Shincal, Tamberia del Inca, Watungasta, Hualfin, Potrero de Payogasta, Nevado de Aconquija and perhaps Yacoraite and Chaquiago) were small administrative centres in comparison with sites like Huánuco Pampa in Peru. Despite their small size, they still-possessed a central plaza, large numbers of *collcas, kallankas, ushnus,* and other administrative features (Raffino 1991:221). The Inca were apparently interested in northwest Argentina for the abundance of gold, silver, copper, and various minerals for the manufacture of bronze. The Spanish probably conquered the area for the same reason. Unlike the Inca, however, the Spaniards encountered a much more formidable military force that stalled effective control for several decades.



Figure 9.3 *Pukará* of Quilmes (Argentina), an Inca-Diaguita site in the Yocavil Valley.

In summary, the high density of Inca sites in northwest Argentina allowed the state to operate along a relatively stable frontier from the foothills of the Andes to the chaqueño forest and to the grassland plains farther south. This frontier included the cordilleras of Zenta, Velazco, Valle Fertil, and Uspallata. There is no evidence of Inca activity on the plains of Santiago del Estero to the east and in Cordoba and San Luis to the southeast. This distribution pattern suggests that the Inca selectively conquered chiefdom-level agricultural societies.

The southernmost frontier: central Argentina and Chile

The southernmost secure point of Inca activity in Argentina was the Uspallata Valley. Farther west and south a few *tambos* (military posts), such as Ranchillos, Tambillos and Tambillitos, and an Inca road, have been located (Schobinger 1971, 1975; Bárcena 1992). Both Schobinger and Bárcena believe that the Inca dominance over the Huarpes ethnic group in the area was weak. There was probably little need for the Inca to exercise tight control over this and other groups in the area because local populations south of the Mendoza River never achieved a competitive and threatening chiefdom-level of socio-political development.

Farther south, on the western side of the Andes in central Chile, the Inca reached the Cachapoal River. This, the farthest point south, may indicate that the Inca penetrated the area during the twilight years of the Empire. As Medina (1882 (1552)) noted, a late arrival in this part of central Chile by the Inca would explain why the Inca troops that fought against the Mapuche south of the Maule River returned to Peru along the eastern Argentine flank of the Andes through the Putagan pass, located 400 km south of Mendoza, rather

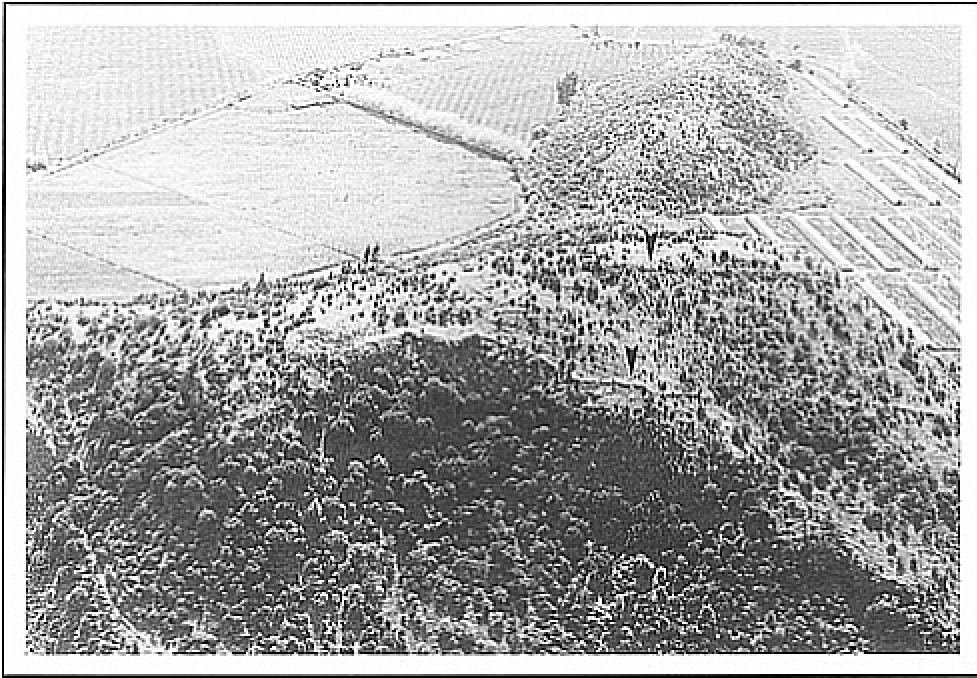


Figure 9.4 View of Cerro Grande de la Compañía in Cachapoal Valley: an Inca defensive *pukará* on the southern frontier. Arrows indicate defensive walls.

than along the direct road to the north through Chile. Bibar (1966 (1558)) notes that the Inca army travelled as far south as the Diamante River and then returned to the north.

As for southern Chile, Medina (1882 (1552)), Silva (1977–8, 1985) and other ethnohistorians have concluded that the Inca never penetrated farther south than the Maipo River. South of the Maipo was a 'buffer zone' where Inca troops only occasionally ventured. Silva has suggested that the Inca went as far south as Angostura de Paine (approximately 30 km south of Maipo). Here again the archaeological record reveals a slighdy different perspective. For instance, at Cerro Grande de la Compañía (Figs 9.4 and 9.5), a fortress located on a hill above the Cachapoal River (80 km south of the Maipo River), there is evidence of Inca defensive architecture, Cuzco architectural traits, storage units, and provincial Inca ceramics (Planella *et al.* 1992). Moreover, human burials in rock shelters at Coinco and Cerro Tren-Tren (Stehberg and Rodriguez 1989) contained local ceramics associated with an incipient Inca style, and farther south near Rengo, an Inca-Diaguita cemetery was recently excavated. None of these sites contained Spanish material and radiocarbon dates from them substantiate a late pre-Hispanic age.

Both the Cachapoal and Maipo Rivers were probably different temporary frontiers of the Inca state as it expanded southward, in the same manner that the northern valleys of Chile were once the farthest points south of the Empire. When the Inca conquered the Diaguita territory from the Copiapó River in the north to the Cachapoal River in the south, a distance of 1,000 km, they advanced in periodic stages. As a result, each valley or stage was a temporary or provisional frontier; once each valley was conquered and secured by the state, the Inca proceeded farther south.

Recently, we located the longitudinal state road that traversed the length of the Andes across the headwaters of several contiguous lateral valleys, and which controlled the lowlands from Copiapó to

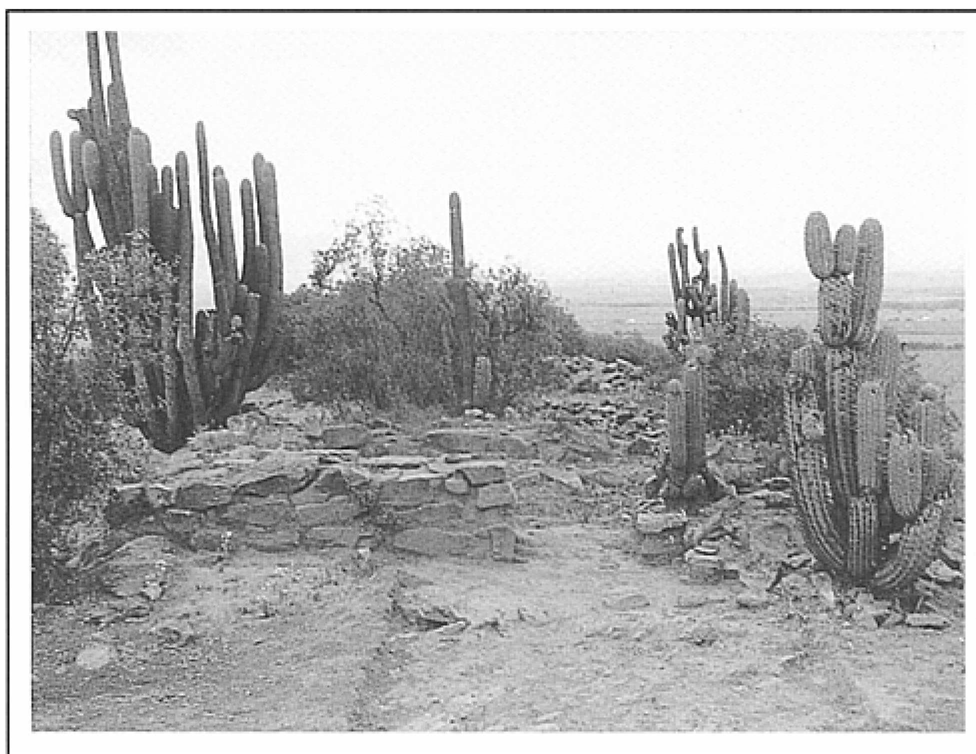


Figure 9.5 Detail of the interior of Cerro Grande de la Compañía.

Cachapoal. We have also found eight lateral roads that unite both the Chilean and Argentine sides of the Andes, in addition to twenty state installations located along a wide network of Inca provincial roads (Stehberg 1992). The first author has postulated that these state roads and installations were strategically located in the headwaters of inter-valley areas near secondary drainage areas to destabilise traditional socio-economic relations between local and regional Diaguita chiefs, who resided in the larger valleys descending to the coast.

Such a strategy probably facilitated the rapid incorporation of the Diaguita into the Inca state. Although no Diaguita fortresses have yet been reported, except in the Copiapó area, the above-mentioned presence of local and Inca burials in cemeteries indicates rapid assimilation of the Diaguita, who probably served as *mitimaes* in the Tawantinsuyu expansion in central Chile and Argentina.

Schobinger (1986) has even suggested that the lateral road system was sacred and represented the hypostasis of a solar road system and cult. He believes that each time the state built a new road, it also constructed several local sanctuaries to initiate the solar cult to the newly conquered area. There is also some evidence to indicate that human sacrifice may have been associated with dedicatory rituals for the new roads.

Silva (1977–8) hypothesised that an institutional frontier existed in the Copiapó Valley, the farthest point south where chiefdom societies and an Andean-like ecology existed. Groups south of Copiapó presumably lacked the socio-economic structure of the central Andes, and thus became the personal slave-territories of Wayna Capac. Silva also believed that such slave-territories were reserved for mineral extraction.

Dillehay and Gordon (1988), who have also studied the Inca presence in south-central Chile, suggested that state emissaries, traders, miners, and explorers established an informal and prolonged contact with Mapuche populations living south of the Maule River. This contact constituted an informal frontier zone which eventually led to the Mapuche incorporation of some Inca religious beliefs and practices, as well as Kechua loan-words.

ETHNOHISTORICAL CHRONOLOGY VERSUS ARCHAEOLOGICAL CHRONOLOGY

Rowe (1945, 1957) was the first to elaborate a chronology for the Inca state, based primarily on the works of the chronicler Miguel Cabello Balboa (1951 (1586)). In following Balboa and other written sources, Rowe and those researchers who have adopted his chronology estimate that the Inca state lasted only from AD 1438 to 1537.

The uncritical following of this chronology is represented most recently by Espinosa Soriano (1987:248) who, in commenting on the date of transfer of 300 *mitimae* workers to Millerea on the north shore of Lake Titicaca, stated that:

> In regard to the date of the above mentioned task, the protector Rodrigo de Illescas (1610) *obviously exaggerated* [our emphasis] when he claimed that the Inca had been in the region for more than 200 years, which would place them there in A.D. 1410. Nevertheless, in the same year, *we now know for certain* [our emphasis], that the Inca state was not yet developed until approximately A.D. 1438. According to the most reliable chronological estimates, Wayna Capac probably began his reign 77 years later, around A.D. 1495, and ruled until about A.D. 1526.

Clearly, the chronology of state development proposed by Rowe, which is based on the study of Spanish chroniclers and on the idea that Pachakuti Yupanqui's reign began in AD 1438, needs to be revised. In referring to Rowe's dates, Silva (1985:321) suggests that Pachakuti's leadership may have begun two, three or five years later. Schaedel (1978:115), on the other hand, views Inca society in the period between AD 1425 and 1450 as an expanding chiefdom or conquering state, with the Tawantinsuyu itself forming after the latter date.

This unquestioning acceptance of the historically derived chronology has become an 'ethnohistorical paradigm' (Stehberg 1992), and has discouraged many archaeologists from processing absolute dates for archaeological materials excavated in Inca sites because the range of a radiocarbon date may overlap with the estimated ethnohistorical chronology and thus be greater or older than the short span of the state. Typically, radiocarbon dates earlier than the ethnohistorically accepted chronology have been rejected by ethnohistorians *a priori*. As a result, archaeologists and ethnohistorians alike have manipulated the positive, or greater than, figure of the deviation to fit the received chronology. In short, the chronology estimated by ethnohistorians is not precise because it refers to the period before the Spanish Conquest and because it has never been critically evaluated by researchers investigating the Inca state. Compounding the problem is the beginning date of the Inca state, which falls within an imprecise and poorly understood archaeological period.

The radiocarbon and thermoluminescence dates derived from several Inca sites both in Peru and along the external frontiers of the Empire suggest that the beginning date of the Inca state is earlier than that postulated by ethnohistorians. Three dates obtained from two sites in the Upper Mantaro Valley of Peru (Earle *et al.* 1987) have an average of AD 1260. This suggests that the expansion of the Inca state into

central Peru was well under way before the fourteenth century AD. Unfortunately, no radiometric dates are available from Cuzco to date the initial development and expansion of the state.

Radiometric dates for the fertile valleys of northern Chile (Muñoz and Chacama 1989) and particularly for the Camarones Valley (Schiappacase and Niemeyer 1988) correlate strongly with those from central Peru and also suggest an Inca presence around AD 1370. A similar pattern exists in northwest Argentina where Raffino (1993) has obtained radiocarbon dates of AD 1210, 1270, 1370, 1380 and 1410 for Inca components in two midden areas of the La Huerta de Humahuaca site. When the standard deviation of these early dates is high their significance is not particularly noticeable even though the measurements may have been derived from seriated stratigraphic contexts and Inca architecture. Beorchia (1985) has obtained similar results from the Santuario Inca Negro Overo, with a date of AD 1380. The average of the above dates is AD 1336, again providing an age that is much earlier than that allowed by the ethnohistorical chronology.

Early radiometric measurements are also reported from sites in the semi-arid and temperate zones of central Chile. Stehberg (1992) reports dates of AD 1390–1400 for the Chasquiwasi of the La Laguna and Guandacol sites, located in the Upper Hurtado Valley, and of AD 1450 for the Conchuca Tambo in the Upper Choapa Valley.

Planella *et al.* (1992) recently obtained a thermoluminescent date of AD 1430 for an arrybaloid vessel from Cerro Grande de la Compañía in the Cachapoal Valley. Rodriguez and Cáceres *(pers. comm.)* also report early dates from several sites in the Aconcagua and Cachapoal Valleys.

Later radiometric measurements that fall within the ethnohistorical chronology have been reported by Bárcena (1988) from several sites in the central-western area of Argentina and by Raffino *et al.* (1985) in the Quillay area (Hualfín Valley). In the former case, it is probable that the Inca invasion occurred much later and was staged from central Chile. The Quillay dates of AD 1490 and 1560 were derived from Inca ovens associated with *tambos* and roads.

Such a suite of absolute radiometric measurements should stimulate us to be more critical of the established ethnohistorical state chronology. The reported earlier dates from the south-central Andes and central Peru should be tested by obtaining more dates from sites in different areas of the state. Furthermore, absolute dates are needed from the Cuzco region—the key to understanding the state chronology. Regardless of the present chronology and of the new dates, we should keep an open mind and accept the possibility that the beginning date of the Inca state may be much earlier than previously thought. An earlier beginning date fits much better with the state expansionistic models (e.g. Murra 1975; Morris and Thompson 1985) which require a slow, deliberate development of state strategies in conquered regions.

DISCUSSION AND CONCLUSION

Several general patterns for the Inca state can be derived from the archaeological record of the south-central Andes. Recognition of these patterns should help us to better understand the relationship between the Inca and local ethnic groups. Inca influence in the south-central Andes occurred primarily in two contexts: the semi-arid fertile valleys that stretched longitudinally along the highland plateaux of Bolivia and Argentina, and the lateral valleys of Chile. The primary reason the Inca conquered the altiplano and highlands was to exploit precious metals, including gold, silver, and elements for the manufacture of bronze (for example, copper, tin and arsenic).

In many regions the Inca inhabited the pre-existing settlements of local ethnic groups and modified them to accommodate state needs. The Inca established the solar cult and religion in many areas, especially the altiplano. They also introduced new technologies, such as irrigation agriculture, terrace agriculture, and

collcas. The Inca also established a socio-political hierarchy among local groups that accepted the conditions of state rule and the *Pax Inca* in general. Groups incorporated by the state copied state ceramic and textile styles, adopted state weapons made of bronze, and learned Kechua. Exceptions existed, such as the case of groups living in the Cochabamba Valley in Bolivia, who strongly influenced the administration and organisation of Wayna Capac (Wachtel 1980). Areas of high productivity in metal products were Porco and Suipacha in Bolivia, Camarones, Copiapó, and Elqui in Chile, and Acay, Aconquija, Famatina and La Alumbrera in Argentina.

The Inca built large state installations only in areas where they incorporated existing populations. This was probably the case for Turi in Chile, and La Paya de Calchaqui, La Huerta and Tilcara in Humahuaca, Argentina. As suggested by Morris (1972) for Peru, the Inca constructed administrative centres in places where there were no large local populations. Settlements of this type include Oma Porco in Aullagas (Poopó Lake, Bolivia), Chuquiago (Suipacha Valley), El Shincal and Hualfín (Catamarca), Yacoraite (Humahuaca Valley), Potrero de Payogasta (Calchaquí Valley) and Tambería del Inca (Famatina, La Rioja). It is possible that, based on more archaeological research, Chaquiago in Andalgalá (Catamarca) and Ranchillos (Uspallata Valley, Mendoza) may be added to this list.

Inca activity in the Cuzco-Huamanis area was stronger in northwest Argentina than in Chile. This is reflected by two archaeological patterns. State installations are larger and more numerous on the Argentine side of the Andes than the Chilean side. Eight Argentine sites exhibit administrative characteristics. The *tambos* on the Chilean side are smaller and less numerous than those in Argentina. Exceptions are Turi and Viña del Cerro in Copiapó. The Chilean sites are not characterised by such prestigious architectural elements as *kallankas, ushnus,* trapezoidal windows and doors, symmetrical *hornacinas,* and decorated stone walling.

The 'highland' road that extends from Titicaca, through Aullagas (Poopó), Uyuni, Tupiza, Suipacha and Talina in Bolivia to northwest Argentina is much longer and more extensive than the Chilean coastal road. The latter passes through the valleys of Azapa, Camarones, Pica, Loa, Salar Atacama, Copiapo, Huasco, Elqui, Hurtado, Aconcagua, Mapocho and Cachapoal in Maipo. The highland road is also better constructed, is wider and partially paved, is associated with lateral roads, and passes through richer ecological zones with an abundant supply of fresh water, agricultural fields and *collcas*. In general, it can be concluded that more traffic travelled along the Argentine highland road.

The infrequent occurrence of prestigious architectural elements at some settlements in Kollasuyu suggests that they were occupied by local and state leaders. With the exception of Turi and Viña del Cerro in Copiapó, there are no Chilean sites associated with *aukaipatas, ushnus,* clustered *collcas,* and large *kallankas*. When they are present, they are arranged in a plan similar to that of Cuzco, suggesting that they are religious and administrative centres. Although not yet discovered archaeologically, it is possible that such centres exist in the extreme north of Chile in the Lluta, Azapa, or Caramones Valleys. Eleven administrative sites have been located along the Bolivian and Argentine highland road. These sites are Oma Porco in Aullagas, Chaquiago (Suipacha), Chagua (Talina), Potrero de Payogasta (Calchaquí Valley), Hualfín and El Shincal (Hualfín Valley), Nevado de Aconquija, and Watungasta (Abaucán Valley), Tambería del Inca (Famatina), Chaquiago (Andalgalá) and perhaps Yacoraite in the Quebrada de Humahuaca.

Planned defensive *pukarás* are very infrequent in the south-central Andes. They are found only in *'areas calientes'* where the Guaraní and Mapuches resided. About twelve such sites have been located in northwest Argentina, eastern Bolivia and the Mapuche frontier. These sites are Quitor and Cupo in Atacama, Coypar and Rinconada in the altiplano of Argentina, Tolombón, Quilmes, Fuerte Quemado and Punta de Balasto in Yocavil, Yacoraite and Hornaditas in Humahuaca, Cortaderas and Angastaco in Calchaquí, and Azampay and Puerta de Corral Quemado in Hualfín. All of these are multicomponent sites built in Inca

times and possibly used by rebellious indigenous groups during the Spanish-Indigenous Period (AD 1535–1660).

The Inca built small *tambos* that served as lattice settlements along the state road in the altiplano in Potosí', in northwest Argentina, to the north of Loa to Arica in Chile, and south of the Salar of Atacama to Copiapó. A few of these are associated with major state edifices often built by the Inca themselves; others are local settlements conquered by the Inca and modified to suit state needs. Hyslop (1984) has observed a similar pattern in other parts of the Inca Empire.

None of the administrative centres of the south-central Andes are as large and as complex as sites such as Huánuco Pampa, Tomebamba, Incawasi and other large enclaves in the central Andes. Nonetheless, the former probably performed the same kinds of 'redistributive' functions, as defined by Karl Polanyi and John Murra, but on a smaller scale. Redistribution here refers to a special social and economic formation characterised by a 'state' that collects, stores, and redistributes goods from, and among, outlying support settlements. It is likely that this redistributive function did not exist in the south-central Andes prior to the Inca invasion. There is no archaeological evidence of *collcas* in northwest Argentina and Chile which would suggest that local chiefdoms were storing and redistributing goods on a large public scale. Most local sites have storage facilities in domestic or household contexts only (Raffino 1991).

Based on demographic data derived from historical documents, the Inca state conquered more than 650, 000 inhabitants in the south-central Andes or Kollasuyu. The demographic figures for several local populations in the period immediately after the Spanish Conquest are as follows: La Plata (Chuquisaca, Oruro, Potosí), 351,107 inhabitants (Cassagne 1975); northwest Argentina, 215,000 inhabitants (Difrieri 1961);[2] Atacama (Tarapacá, Atacama, Antofagasta), 40,000 inhabitants (Hidalgo 1982); Copiapó, Huasco, Coquimbo, Limari, Combarbalá and Choapa, 25,000 inhabitants (Hidalgo 1982)[3] and Aconcagua, 7,500 inhabitants (Hidalgo 1982).

In conclusion, it is probable that the Inca Empire lasted longer than was previously thought. The *Pax Inca* exercised different levels of regulation and control in different regions, depending on the local goals of the state and on the response of local groups to state strategies. The Inca army was utilised only to coerce local groups to respect the Inca lord and to accept his authority. All of this changed when the Spanish arrived and the Inca state became a legend and a utopia sought by local present-day Andean communities as they attempt to reclaim their lands and social dignity.

ACKNOWLEDGEMENTS

The authors wish to thank Dr Tom Dillehay for the English translation of this work, and architect Ricardo Alvis (1948–1995) for his assistance and co-operation over the past several years.

REFERENCES

Bárcena, R. (1988) 'Investigaciones de la dominación incaica en Mendoza. El tambo de Tambillitos, la vialidad anexa y los altos cerros cercanos. Espacio, tiempo y forma', *Prehistoria Mendoza* 1:397–426.

—— (1992) 'La ocupación inkaica en Mendoza: el tambo de Tambillos', *Gaceta Arqueológica Andina* 6, 21: 155–72.

Beorchia, A. (1985) *El Enigma de los Santuarios Indígenas de Alta Montana,* San Juan, Argentina: CIADAM T.5.

Bibar, J.de (1966 (1558)) *Crónica y relación Copiosa y Verdadera de los Reynos de Chile,* Santiago: Fondo Histórico y Bibliográfico José Toribio Medina.

Cabello Balboa, M. (1951 (1586)) *Miscelánea antártica,* Lima: Universidad Nacional Mayor de San Marcos.

Cassagne, B. (1975) *Tasa de la Visita General de Francisco de Toledo,* Lima: Universidad Nacional Mayor de San Marcos.

Cieza de León, P. (1962 (1553)) *La Crónica del Peru (Primera Parte),* Madrid: Espasa Calpe.

Difrieri, H. (1961) 'Población indígena y colonial en Argentina', in F. de Aparicio and H.Difrieri (eds) *La Argentina. Suma de Geografía,* vol. VII, Buenos Aires: Editorial Peuser. 20–31.

Dillehay, T. and Gordon, A. (1988) 'La actividad prehispánica de los Incas y su influencia en la Araucanía', in T.Dillehay and P.Netherly (eds) *Proceedings 45 Congreso Internacional de Americanistas. La Frontera del Estado Inca,* Oxford: British Archaeological Reports (International Series 442). 215–34.

Dillehay, T. and Netherly, P. (1988) 'Introducción', in T.Dillehay and P. Netherly (eds) *Proceedings 45 Congreso Internacional de Americanistas. La Frontera del Estado Inca,* Oxford: British Archaeological Reports (International Series 442). 1–33.

Earle, T., D'Altroy, T., Hastorf, C., Scott, C., Costin, C., Russel, C. and Sandefur, E. (1987) *Archaeological Field Research in the Upper Mantaro, Peru, 1982–3: Investigations of Inca Expansion and Exchange,* Los Angeles: Institute of Archaeology, University of California (Monograph 28). 1–141.

Espinosa Soriano, W. (1978) *Los Modos de Producción en el Imperio de los Incas,* Lima: Editorial Montaro.

—— (1987) 'Migraciones internas en el reino Colla. Tejedores, plumereros y alfareros del estado imperial Inca', *Chungara* 19:243–89.

Hidalgo, J. (1982) 'Culturas y etnías protohistóricas: area Andina mieridional', *Chungara* 8:209–54.

Humboldt, A.von (1810) *Vue des cordilleres et monuments des peuples indigènes de I'Amérique,* 2 vols, Paris.

Hyslop, J. (1984) *The Inca Road System,* New York: Academic Press.

—— (1988) 'Las fronteras estatales extremas del Tawantinsuyu', in T.Dillehay and P.Netherly (eds) *Proceedings 45 Congreso Internacional de Americanistas. La Frontera del Estado Inca,* Oxford: British Archaeological Reports (International Series 442). 35–57.

Idrovo, J. (1988) 'Tomebamba: primera fase de conquista Incásica en los Andes septentrionales: los cañaris y la conquista Incásica del austro Ecuatoriano', in T.Dillehay and P.Netherly (eds) *Proceedings 45 Congreso Internacional de Americanistas. La Frontera del Estado Inca,* Oxford: British Archaeological Reports (International Series 442). 87–104.

Lorandi, A.M. (1988) 'Los Diaguitas y el Tawantinsuyu: una hipótesis de conflicto', in T.Dillehay and P.Netherly (eds) *Proceedings 45 Congreso Internacional de Americanistas. La Frontera del Estado Inca,* Oxford: British Archaeological Reports (International Series 442). 235–59.

Medina, J.T. (1882 (1552)) *Los Aborígenes de Chile,* Santiago: Fondo Histórico y Bibliográfico José Toribio Medina.

Meyers, A. (1976) *Die Inca en Ekuador,* Bonn: Bonner Amerikanistische Studien (Udo Obherem. 6).

Morris, C. (1972) *State Settlements in Tawantinsuyu: A Strategy of Compulsory Urbanism,* Chicago: Chicago University Press.

—— (1988) 'Más allá de las fronteras de Chincha', in T.Dillehay and P.Netherly (eds) *Proceedings 45 Congreso Internacional de Americanistas. La Frontera del Estado Inca,* Oxford: British Archaeological Reports (International Series 442). 131–40.

Morris, C. and Thompson, D. (1985) *Huánuco Pampa: An Inca City and its Hinterland,* London: Thames and Hudson.

Muñoz, I. and Chacama, J. (1989) *Cronología por Termoluminiscencia para el Período Intermedio Tardío y Tardío en la Sierra de Arica,* Arica: Universidad de Tarapacá (Documentos de Trabajo 5).

Murra, J. (1946) 'The historic tribes of Ecuador', in J.H.Steward (ed.) *The Andean Civilizations. Handbook of South American Indians,* Washington DC: Bureau of American Ethnology, Smithsonian Institution. 785–821.

—— (1975) *Formaciones Económicas y Políticas del Mundo Andino,* Lima: Instituto de Estudios Peruanos.

Nordenskiöld, E. (1917) 'The Guaraní invasion of the Inca Empire in the sixteenth century', *The Geographical Review,* 4, 2:103–21.

Planella, M.T., Stehberg, R., Niemeyer, H., Tagle, B. and del Río, C. (1992) 'El complejo defensivo indígena del Cerro Grande de la Compañía (Valle de Rancagua)', in H.Niemeyer and D.Quiroz (eds), *Actas 12° Congreso Nacional de Arqueología Chilena,* Temuco: Ediciones de la Dirección de Bibliotecas, Archivos y Museos. 403–22.

Raffino, R. (1982) *Los Incas del Kollasuyu,* La Plata: Editorial Ramos Americana.

—— (1991) *Poblaciones Indígenas en Argentina, Urbanismo y Proceso Social Precolombino,* Buenos Aires: TEA.
—— (1993) *Inca, Arqueología, Historia y Urbanismo del Altiplano Andino,* Buenos Aires: Editorial Corregidor.
Raffino, R., Alvis, R., Baldini, L., Olivera, D. and Raviña, G. (1985) 'Hualfín, El Shincal y Watungasta, tres casos de urbanización Inca en el NO. argentino', *Cuadernos del Instituto Nacional de Antropología* 10: 425–58.
Raffino, R., Alvis, R., Olivera, D. and Palma J. (1986) 'La instalación Inca en la sección meridional de Bolivia y extremo boreal de Argentina', *El Imperio Inca, Comechingonia* 4, 1:63–131.
Raffino, R., Nielsen, A. and Alvis, R. (1991) 'El dominio Inca en dos secciones del Kollasuyu: Aullagas y Vallegrande', *El Imperio Inca, Comechingonia,* 9, 2:99–153.
Romoli, K. (1977–8) 'Las tribus de la antigua jurisdiccion de Pasto en el siglo XVI', *Revista Colombiana de Antropología* 21:11–51.
Rowe, J.H. (1945) 'Absolute chronology in the Andean area', *American Antiquity* 10, 3:265–84.
—— (1957) 'La arqueología del Cuzco como historia cultural', *Revista del Museo e Instituto Histórico del Cuzco* 10, 16 and 17:34–48.
Salomon, F. (1988) 'Frontera aborigen y dualismo Inca en el Ecuador prehispánico; pistas onomásticas', in T.Dillehay and P.Netherly (eds) *Proceedings 45 Congreso Internacional de Americanistas. La Frontera del Estado Inca,* Oxford: British Archaeological Reports (International Series 442). 59–86.
Schaedel, R. (1978) 'Formation of the Inca state', in R.Matos (ed.) *III Congreso Peruano del Hombre y la Cultura Andina,* vol. I, Lima. 112–56.
Schiappacase, V. and Niemeyer, H. (1988) 'Evidencia y discusión de los períodos Intermedio Tardío e Inca en la desembocadura del Valle de Camarones', unpublished manuscript, Santiago de Chile.
Schobinger, J. (1971) 'Arqueologia del Valle de Uspallata', *Relaciones de la Sociedad Argentina de Antropología* 5: 71–84.
—— (1975) *Prehistoria y Protohistoria de la Region Cuyana,* Mendoza: Museo de Ciencias Naturales y Antropología.
—— (1986) 'La red de santuarios de Alta Montana en el Contisuyu y el Collasuyu', *El Imperio Inca, Comechingonia* 4, 1:297–317.
Silva, O. (1977–8) 'Consideraciones acerca del Período Inca en la Cuenca de Santiago', *Boletín del Museo Arqueológico de La Serena* 16:211–43.
—— (1985) 'La expansion incaica en Chile, problemas y reflexiones', in H.Niemeyer and G.Ampuero (eds) *Actas del IX Congreso Nacional de Arqueología,* La Serena: Ediciones de la Dirección de Bibliotecas, Archivos y Museo. 321–44.
Stehberg, R. (1992) 'Instalaciones incaicas en el norte y centro semiárido de Chile', unpublished doctoral thesis, Universidad Nacional de La Plata, La Plata.
—— (1995) *Instalaciones Incaicas en el Norte y Centro Semiárido de Chile,* Santiago de Chile: Dirección de Bibliotecas, Archivos y Museos.
Stehberg, R. and Rodríguez, A. (1989), 'Ofrendatario Mapuche-Incaico en el Cerro Tren-Tren de Doñihue', *Museos, Chile* 6:8–11.
Strube, E. (1963), *Vialidad Imperial de los Incas,* Córdoba: Instituto de Estudios Americanistas (Serie Histórica 33).
Wachtel, N. (1973), *Sociedad e Ideología,* Lima: Instituto de Estudios Peruanos.
—— (1980) 'Les mitimas de la vallée de Cochabamba. La politique de colonisation de Huayna Capac', *Journal de la Société des Américanistes,* 67:297–324.

NOTES

1. Translated from the Spanish by Tom Dillehay.
2. Difrieri used documents of the period between AD 1557 and 1698 (Sotelo Narvaez, Hernando de Lerma, Ramirez de Velazco, Vazquez de Espinoza and Larrouy). There are no accurate censuses for the heavily populated valleys of Humahuaca, Cachaqui, Vallegrande, Iruya, Santa Victoria, El Toro, Hualfín, El Cajon, and some oases in the puna. The figure of 215,000 people in northwest Argentina for the sixteenth century is too low.

3. These data were collected by Hidalgo (1982) from the ‘Cartas de Pedro de Valdvia’.

Part 3

New directions

Chapter Ten
The archaeological culture of San Agustín
Towards a new interpretation

César Velandia[1]

INTRODUCTION

The purpose of this chapter is to give an explanatory introduction to the significance of the archaeological culture of San Agustín and to the present state of research concerning its possible historical, and therefore cultural, links with other American societies. Both the attempt to interpret the meaning of culture and to relate this meaning to the cultural expressions of preHispanic societies unite the central questions of archaeology, insofar as such interpretations would lift the veil of uncertainty produced by that past being concealed in the strange forms and objects spread throughout the Upper Magdalena River. I consider here that in the southwest of Colombia a great culture developed which combined its remote Amazonian origins with the processes of construction of the Andean cultures, in order to generate a *sui generis* culture, as its difference lies in its resemblance to other cultures. As such, elements of the culture of San Agustín are found in an increasingly broad extent of territory.

The remains of the archaeological culture of San Agustín are scattered over a vast landscape whose centre is a mountainous massif of the Andean Cordillera. The territory is bounded to the west by the Chocoan rainforest and the Pacific Ocean, to the south by the Andean Cordillera, and to the east by the Amazonian rainforest. The greatest concentration of archaeological material is found in the jurisdiction of San Agustín e Isnos, in the Department of Huila, which comprises the meridional region of the upper basin of the Magdalena River (see Fig. 10.1). Once it was thought that the culture of San Agustín was an isolated case that, paradoxically, would be more related to the high American cultures (Chavín, Olmeca, etc.) than to the nearest pre-Hispanic cultures in Colombia. This was due to the way in which archaeological studies developed and therefore to our ignorance of such cultures. Nowadays, our thinking has changed. The so-called culture of Tierradentro, for example, is now thought to have been a regional development of San Agustín. Other cultures that were considered distinct from San Agustín, such as the complex known as Calima (Ilama, Yotoco and Sonso), are in fact more similar, to the point that the latest finds from Malagana lead us to deduce that these cultures were more closely related to each other than was once thought.

Research in the area of San Agustín has widened in the last few years in regard to the number and posing of problems. Nonetheless, the most important work was carried out between 1960 and 1975, and consisted of reconstructing the funerary complexes that had been exploited over many years by *guaqueros* (looters) and traders. Furthermore, the first general explanation of the archaeological material was published by the Colombian archaeologist, Luis Duque Gómez (1964). He produced the results of the exploration initiated by him in the previous decade, and his work has become a compulsory reference for all later work. The temporal scheme proposed by Duque Gómez (1964) has not undergone many alterations; it establishes the

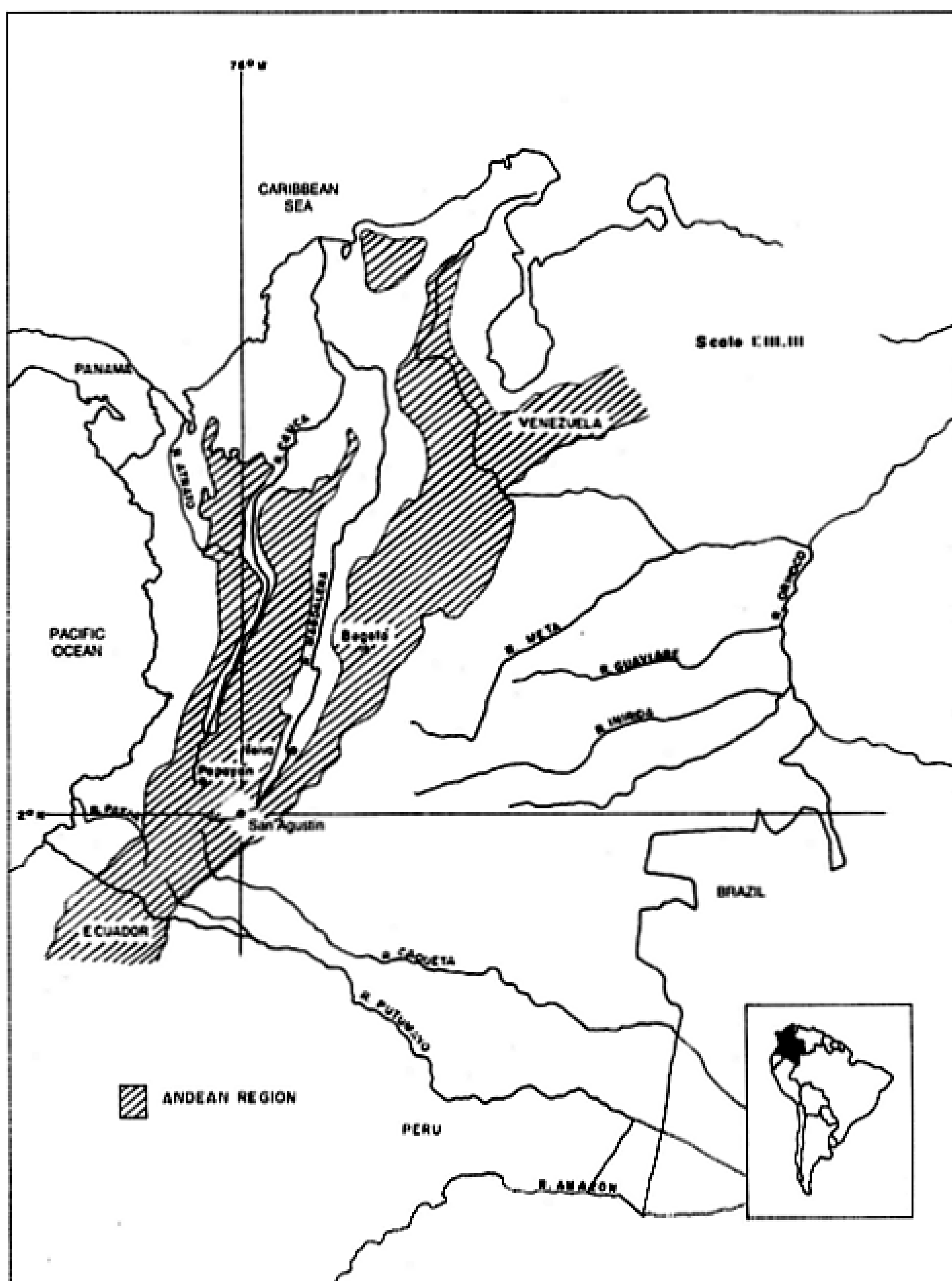


Figure 10.1 Map of the geographical position of the archaeological culture of San Agustín.

basic criteria that have been adopted by most Americanists. Deep down the scheme implies an organistic concept, since it supposes the notion of the birth, development and death of cultures, which is well known in

the cyclical theories of history The temporal scheme was enunciated as a vertical process, from bottom to top, in which the oldest dates constitute an Archaic phase (3300 BC), followed successively by two great phases, the Formative and the Classic. The final period, which is more or less equivalent to the European Conquest in every American culture, is called Recent. Some researchers (e.g. Lleras 1990:60) have proposed the nomenclature be changed, and the terms Pre-agricultural, Early, Intermediate and Late, respectively, be used instead. However, these terms do not clarify the scheme. On the contrary, they make the explanation 'noisier', because even if they avoid an organistic meaning, they nonetheless imply an evolutionist meaning (see Table 10.1).

The main feature of the culture of San Agustín is its statuary, to which researchers have devoted their greatest attention. However, in the last few years, by introducing new questions in regional archaeology, research has laid emphasis on the reconstruction of settlement patterns. The immediate result has been the expansion of the area of research and the establishment of more objective correlations with other American cultures. Furthermore, an interest in the economic and organisational structures of pre-Hispanic societies has developed, particularly as concerns the *cacicazgos* or chiefdoms which are supposed to have been fundamental to the structure of San Agustín society.

In spite of the emphasis given to the statuary it has not been correlated with specific times, since most of the monumental constructions were plundered and destroyed even before the European Conquest. Consequently, the greatest force of speculation and subjectivism has fallen on the statuary In agreement with the aesthetic theories developed at the end of the nineteenth century, a kind of temporal classification of the statuary (Archaic—Formative—Classic) was imposed and adjusted to the concept that the naturalist forms were of necessity older, since geometric styles would signify more developed thought. Although it has been impossible to establish a carefully dated development of the iconography, the scientifically controlled excavations during which statuary has been found contradict such suppositions. The 'naturalist' forms are not the oldest; at least, they are not associated with materials which might be considered properly as Archaic. Nevertheless, such mechanistic evolutionism has maintained a certain order to the material, which gradually changes to a new order as research improves. In this respect, according to Engels, 'a bad hypothesis is better than nothing' (1972:37). The negative aspect of the matter is that an enormous effort is required in order to take apart these hypothetical arrangements, especially as some of these criteria have become 'official' in scholarly texts during the past several decades. But, after all, this is the job of scientific research and the teaching of science.

PROBLEMS OF METHODOLOGY

The interpretation of an archaeological culture implies several difficulties, the most obvious of which concerns the quantity and quality of the data available for description and comparison. Such data, with respect to the totality that once existed, appear to the researcher as 'odds and ends', according to Lévi-Strauss (1972:42), as the debris that remains after the passage of time

Table 10.1 Chronological periods of San Agustín culture, according to Duque Gómez (1964) and Lleras (1990)

Periods according to Lleras (1990)	Periods according to Duque Gómez (1964)	Economic basis	Social organisation
XVII AD	AD 1700 AD 1600		Independent villages, occasional military leadership.

Periods according to Lleras (1990)	Periods according to Duque Gómez (1964)	Economic basis	Social organisation
Late	Recent	Yucca agriculture, fishing and hunting. Abandonment of maize agriculture	Simple ‘cacicazgo’. Groups of a few houses, probably based on kinship.
XI AD			
	AD 1000		
X AD	------ AD 800		
Intermediate	Classic Regional ------ AD 300 Upper	Maize agriculture; complementary hunting and fishing. Large works for the preparation of crop lands.	Stratified, centralised, complex ‘cacicazgos’ with work specialisation.
I AD	Formative		
II BC	200 BC	Maize agriculture (?)	
Early	Lower Formative	Gathering, complementary hunting and fishing.	Simple ‘cacicazgos’ (?)
VI BC			
Pre-agriculture	800 BC Archaic	Gathering of fruits and seeds, hunting (?)	Bands formed by members of the same ancestry (?)
3300 BC	3300 BC		

and history. Its fragmentary character is even more complex if we also consider the questions of the observer, who cannot in any moment encompass the totality of those data. He or she has to approach the available information through its fragments, its individual parts, because of their own intellectual limitations. The researcher is then faced with the task of ordering the disparity and confusion of the data by dissecting those parts in order to find the links, the knots, or the hinges which connect their relationships. They must become a kind of anatomist, a surgeon, or assembler (a *bricoleur,* according to Lévi-Strauss, 1972:32), who separates and analyses what in a way is an amorphous mass of data. From this theoretical position they must then build a model of an order which can be compared later with other possible models.

The ‘strangeness’ of the forms of the other society is already produced by the difficulty which we have in admitting, from the privileged point of view of our Eurocentric culture, the existence of forms of culture so distant and unlike those which shape our own. The attitude which considers the culture of San Agustín exotic, prevents us from recognising ourselves as the strangers in the landscape of the Upper Magdalena. This is undoubtedly the greatest obstacle to knowing another society. The first condition to be fulfilled in order to overcome this obstacle consists of recognising the diversity of the ‘other’ and the right it has to be ‘other’. Subsequently, the search for the resources to try to understand the ‘other’ is simplified, since comprehending it this way demands us to put our ‘box of tools’ (see Foucault 1979) in order, or as I have said before, ‘to place one’s own head rather than the frog on the dissecting table’ (Velandia 1993:6). Further, we must bear in mind that this process depends not only on the abstruse and hidden aspects of the things we try to understand, but also on our capacity to propose explanatory models in whose procedure two strict rules are observed.

Firstly, bearing in mind that ‘the thing’ which is to be placed on the working table is essentially signifying, not simply because it is a fact of culture, but more specifically because it consists of a social

product, then it has to be conceived of as part of a text with respect to which it denoted a meaning but also connoted a relation. Therefore, the fragment taken into consideration cannot be objectified independently of the above condition. The researcher cannot, therefore, take the object of reflection out of the historical context that generated it.

Secondly, neither forms nor relations among forms can be related or contrasted with other forms or relations among forms of the cultural context of the researcher. It is only admissible to compare the forms and relations among things of the material being studied with cultural forms comparable with the ethnographic and archaeological material and information of historically homologous societies.

An explanation of the specific meaning of the archaeological culture of San Agustín which gives coherence to the scattered 'odds and ends' must obey a logic different from that which organises the functions and relations of our culture. Our interpretations have to observe frames of reference other than those belonging to our narrow ethnocentric perspective. Therefore, a possible response to the 'enigmas' of the culture of San Agustín is to contrast the information we have with ethnographic information on native societies. In the past half-century of anthropological research (and the past twenty years in Colombia), expressions of mythopoetic thought have become a possible bridge to these other societies which are so 'slow' in history (Lévi-Strauss 1973:45). This possibility is due to the development of linguistics and social anthropology particularly, but also to the development of theoretical alternatives within archaeology through the introduction of new concepts.

The possibility of finding inductive support for the iconographic interpretation of the remains of archaeological cultures through ethnography lies in the character of 'cold societies' that Lévi-Strauss (1973: 45) enounced to define the 'rhythm' of the historical process of native American societies. The relative stability of the structure of social relations of production, based on kinship structures, determines some very particular conditions of social adjustment which solve contradictions in the form of relationships with nature. As a result, although native societies are not impervious to the effect of external cultural factors, where conditions of isolation and autonomy remain the fundamental structures of culture are also maintained. Of these, the structure of ideology, or to be more precise, the structure of thought in its wild state, is particularly refractory Considering that five hundred years have passed since the European Conquest, it is very significant that such archaic mental structures have survived. In this respect, Lévi-Strauss (1973:246) has argued:

> What is most evident is that in these regions of South America where the high and low cultures have maintained regular or intermittent contact over a long period, the ethnologist and archaeologist can assist each other in the clarification of common problems. The 'serpent with a body covered in fish' is only one theme amongst thousands that Peruvian pottery depicts almost *ad infinitum*. How can one doubt that the key to the interpretation of so many motifs that remain hermetic is at our disposal and immediately accessible in myths and tales that live on? It would be an error to discount these methods through which the present allows access to the past.

Consequently, assuming that history also happens to indigenous societies, although their time passes with less hurry than ours, the results of ethnographic research are a valuable source with which to contrast archaeological information, particularly in relation to the iconographic interpretation of the aesthetic expressions of such societies (see Reichel-Dolmatoff 1968, 1988; Saunders 1998). Such 'superstitions' are closer to a true interpretation, and therefore more valid as interpretations, than the suppositions we make by means of our atavistic imaginings.

From among the several themes that could be analysed of the culture of San Agustín, I focus on the architecture of funerary space, the cosmic significance of culture, and the interrelationships between San Agustín and other American cultures.

THE ARCHITECTURE OF FUNERARY SPACE

If we understand architecture as the definition and cultural construction of vital spaces in accordance with the problem discussed by Llanos (1990a:13) on the distinction between 'mythical and quotidian spaces' in the San Agustín culture, then iconographic depictions, polychromic ornamentation of tombs, the distribution of space and the location of funerary assemblages all have an architectural connotation.

I conceive of the notion of cultural spaces as those spaces in which the preservation of society and, therefore, the production and reproduction of life is made possible. They are Vital spaces' because their goal does not lie in the construction of culture but, rather, in the production of life, of human nature in society. Consequently, I do not make a restrictive distinction between the spaces of death and the spaces of life. Our concept of life and death, a polarisation we make into a univocal fact for past societies, does not exist in the 'wild mind'. In every myth, narration, symbolic depiction and icon, death appears as part of the phenomenon of nature which gives life, and not as the antithesis or negation of life. The characteristics of death are represented or symbolised in a way that undoubtedly denotes the fact of death. However, death never appears as the negation of its antonym life, neither in the game of opposition that characterises the mythopoetic language of these societies, nor in the iconography of the culture of San Agustín more specifically. On the contrary, we find the greatest act of the propitiation of life in an objectively distinguishable space, such as that destined for the burial of the dead. Every aspect of San Agustín is related to the significance of life. The funeral spaces are the place of the mythopoetic reconstruction of life. In every form the icons allude to the context that gives them sense and unity. In one way or another they all relate to one concern: the permanence of life. As such, the icons are births, sexual intercourse, pregnant 'madonnas', uteri, flowers, erect phalluses, solar depictions of aquatic meteors and ritual officiating priests, etc. The animals—serpents, frogs, lizards, jaguars, crocodiles, monkeys and birds—carry out their analogical functions from the uteri of the tombs by actualising the continuity of the inverse world where people continue living in society.

Consequently, funeral architecture is really the space where funerary language is actualised, and not the alterity of another space. As such, I concur with Llanos (1990a:26) that a 'mythical space' is defined by the *mise-en-scène* or actualisation of a mythopoetic discourse which explains reality. In other words, funerary architecture is ritual space, where the mediators, or shamans, or the men who own knowledge, are authorised to act symbolically, 'magically', on that reality. The tombs, therefore, have a singular structure. To elucidate upon that structure, Llanos (1990a:26) conceives of a design of architectural space based on a system of opposition whose principle is the depiction of 'dualistic concepts' of nature or society. However, I do not think that the system worked this way. In San Agustín there are no representations of a world segmented into dual polarities like ours, where the existence of one of the terms excludes by opposition the possibility of another, where death excludes life, where the above excludes the below or the white makes the black irreducible. Such 'schizophrenia' is maybe a condition of our society, but it is not the mental condition of indigenous societies. The fact that the spatial relationships of the funerary architecture are reducible to certain pairs of opposites does not mean that the order of the depictions implies a 'concept of duality'. These reductions are possible because such relations are linked to a much wider and complete group of meanings that classifies the incidents of real life into a logical 'order'. Such an order, in opposition to the chaos or 'disorder' of what is not explained or rationalised, is structured as a cosmos or harmony of

meaning which is necessary for every person in every society to fulfil the possibility of living. In other words, by means of the construction of a language that works through a binary code. In such a way, the spaces from behind and from ahead, the above or the below, or 'the four directions of the world' are theoretical references to possible spaces in which the people of a determined society live. However, these spaces are not thinkable except for the way they articulate with the totality and for the meaning that the phenomena of nature, which are uncontrollable by the instruments with which the facts of quotidian life transform themselves, must have.

Based on a myth of the Ufaina from the Miritiparaná River that explains the origins of the *maloca,* Hildebrand (1984:196) deduced their need 'to define their own space (cultural) from where man can rule the world and pass from chaos to cosmos'. As a consequence, every point of the real quotidian world must have a necessary and symmetrical relationship with other possible points; and every relationship between the phenomena of daily life must also have its proper place within the order or relations that make the total world possible. For example, the Kogi from the Sierra Nevada de Santa Marta have a particular order of space:

> The Kogi make a distinction between seven cardinal points: East, West, North, South, Zenith, Nadir and the point 'in the middle'… With the four points [east, west, north and south] the *Túxe* and *Dáke* of the social organisation are associated…the domestic animals dominate these directions: the Master of the East is the jaguar and its 'woman' the wild pig; the Master of the West is the owl and the snake; the Master of the North is the opossum and the armadillo and the Master of the South is the puma and the deer. The points of the Zenith and the Nadir do not have Master but the point 'in the middle' is under the sign of the Red Jaguar.
>
> (Reichel-Dolmatoff 1985:229; see Fig. 10.2)

A 'cosmic vision' of the real world or the vital environment is not, consequently, a depiction on a scale of the cosmos, nor a reduced objectification of the real universe. A cosmology is, for the wild mind, a necessary arrangement of a possible world, of a reasonable world, with regard to which everyone's life must have meaning. Such is the significance of the depictions of 'the universe inside a *maloca*' found in various forms in almost every Amazonian and Andean society (e.g. Correa 1987:143; Reichel-Dolmatoff 1985), and in which the order of nature, the cosmos, is thought of as a macro-projection of the social order. Every incidence of the quotidian in this social order must have its consequent explanation in the order or disorder of the environment on which society is dependent. The concept stated is best described by Correa (1987:143):

> The *maloca* was the epicentre of the social organization of the Cubeo. In fact, its architectural structure is conceived of as the reproduction of the cosmos in itself. The roof depicts the canopy of heaven; the damaged leaves which cover it let the light pass through small holes resembling the stars; the highest crosspiece of the ridgepole, positioned within the maloca to face east-west, resembles the path of the sun; the rods holding the covering of leaves falling sideways are the river which flows towards the boundaries of the earth; the central hall figures the world's axis, the great river which communicates with its ends, the doors of the *maloca* enlightened by the morning sun, from where the sun rises, and the setting sun, from where it sets; the floor of the *maloca* is this earth; its centre is the depiction of the centre of the world, frequent scene of rituals. The *maloca* is, then, a microcosmos.

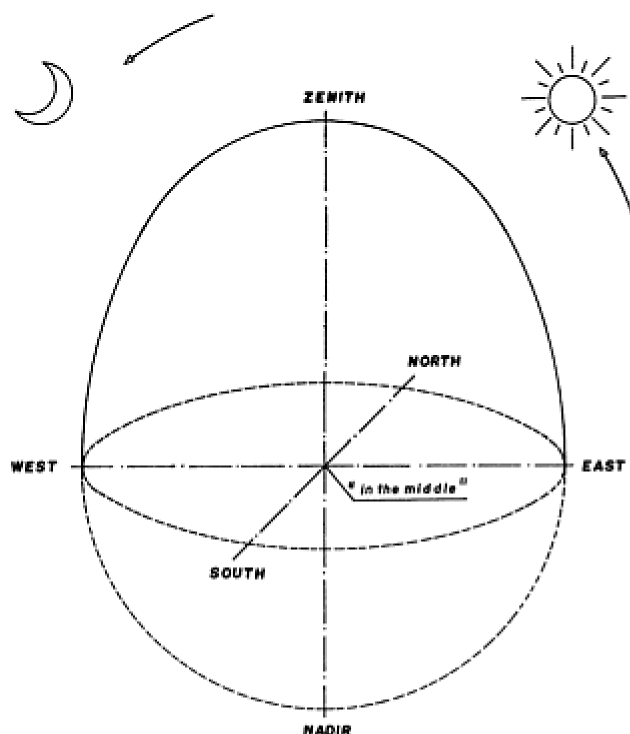


Figure 10.2 Schematic diagram of the structure of space in the Kogi cosmology, indicating the seven cardinal points.

The *maloca,* conceived of as the space where vital operations are carried out, is a microorder representing the social relationships which make life in society possible. Furthermore, the system of relationships that makes society possible is joined to the general order of nature by means of mythopoetic language.

Consequently, the funeral architecture is not a cultural space of a different 'nature' from that of the system which forms the set of relationships defined as a settlement pattern. Death is not a phenomenon which is outside nature, it is not 'nonnature', and therefore it should be understood as part of the same system of ordering the world. As such, Llanos (1990b:78) has argued: 'The large cemeteries are the main symbolic element of the settlement patterns of the Classical Regional, they contain the mythical world which ruled during this period'.

Strictly speaking there is no 'mythical space', as the only space in which myth is possible is 'the non place of language' (Foucault 1979:11). Perhaps it is more precise to talk about sacred spaces, to distinguish these from common, domestic, quotidian, or profane spaces. This distinction, developed especially by Eliade (1983), is more practical in enunciating this set of relationships. Eliade (1983:63) argues that for the religious person space and time are neither homogeneous nor continuous: 'there are the intervals of sacred Time, the time of festivals…there is on the other hand secular Time, the common temporal duration in which acts deprived of religious significance are inscribed. There is a continuous link between these two classes of Time.' Space is also discontinuous. In front of a space where events with no religious significance are carried out —though not because such space is free of ritual character—other spaces rise up in which the actualisation of mythopoetic explanations of reality are performed. These myths are staged by means of the resources of language, dance, painting, theatre, story and sacrifice.

In spite of this distinction, the spaces of domestic life do not have a type of nature different from that of the spaces of death; neither do the spaces for culture, hunting, dumping, and so on, nor the activities performed in these spaces. Every action of quotidian life is marked by restrictions, prescriptions and interdictions which must be carefully followed on pain of promoting the imbalance of such precarious relationships. What determines the sacred and therefore profane character of time or space is the conformity to an order introduced by mythopoetic discourse. The difference that loads space and time with meaning lies in a semantic field.

Funerary architecture has very peculiar characteristics in San Agustín. Apart from the different structures already described by others, and in which the ornamentation of the tombs is not considered as a constitutive element of the architectural structure, I want to point out two particular elements. The first deals with the concept of the demarcation of the space, or funeral enclosure, and the second with the concept of the construction of the funerary space.

In the case of burial, the operation consists of digging a hole of an adequate size, placing the body inside and covering it with earth and stones. Any other action, such as arranging the stones in a particular way, raising a tumulus, covering the body with flowers or sprigs, dyeing the body with pigment, etc., goes beyond the sanitary function of getting rid of a source of infection. Such actions turn burial into a significant other kind of performance, with other potential meanings. Anything going far beyond the hole in the ground supposes an ideological charge, a manner of depiction, a certain form of behaviour in the face of death. In short, it denotes an 'interpretation' of the phenomenon of death.

Before demarcating a tridimensional space which, as a sacred or ritual place, must be different from other spaces—since being sacred it is blemished, contaminated and as a consequence is ominous—the community must draw a plan or arrangement of the available spaces, since not every space fits the ritual requirements. Burials in hills, mountains or high places were carried out, and they continue today, not only for practical reasons, such as protecting the constructions from humidity or the degradation caused by running water, but also fundamentally as a cosmic projection.

The burial of bodies in a society implies a certain way of conceiving of the relationship between humans and nature. As such, it is not arbitrary that funerary rites consist of such procedures as burning the body, putting it in a canoe for a one-way journey down the river, or exposing it on a barbecue to be devoured by birds of prey. Every one of these ritual techniques to dispose of a body supposes a special way of regarding human nature and they are therefore in accordance with the mythopoetic explanation given by the social group. According to what I noted about the relationship of such 'explanations' to social reality, these techniques also agree with the specific and dominant forms of reproducing life.

Primary incineration of bodies and the final journeys by canoe are not frequent in agricultural societies. However, such practices are more common amongst rainforest societies or those whose economy depends on the fluvial environment. Notorious in the myths of rainforest societies is the idea that the cosmos is distributed between the opposite poles of fire and water. The earth is simply the place where humans, vegetation and animals dwell, and where quotidian transactions occur. The rest goes upwards, towards light, the sun and the heavenly bodies providing the energy which activates life on the land. The land is also fertilised by the primordial waters found below. The rivers and lagoons unite the 'below' and the 'above'. In a myth of the Indians of the south of Tolima,

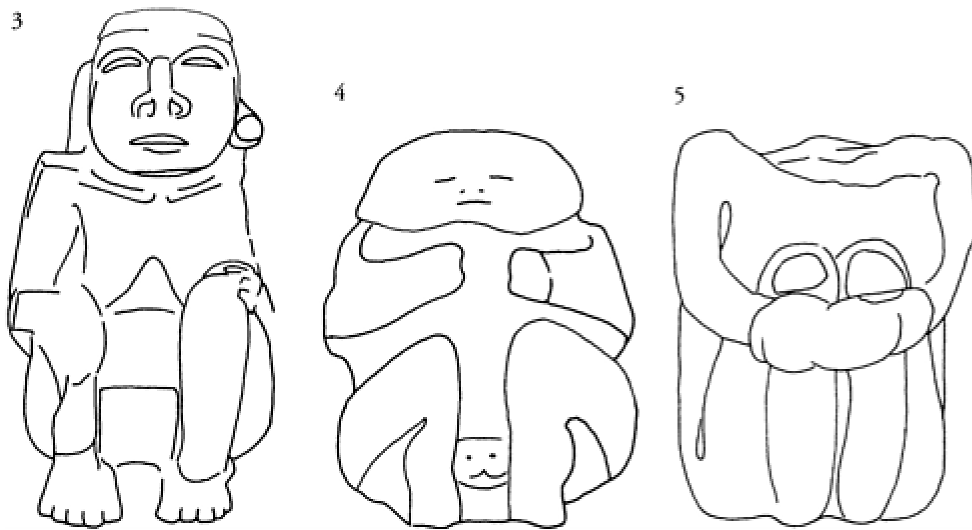
> the rainbow, which is born in a sacred lake, takes the fish out of the water from below and carries them to the clouds which later, when there is a storm, rain all over the mountains and the water flows into the rivers…that is why the rainbow is coloured.
>
> (Faust 1986:103)

The origins of humans are thought of in a way that is congruent with this idea. In the Amazon, one of the most important mythographic elements is the anaconda *(Eunectes murinus gigas),* which is not only related to the origin of rivers, but is also used to explain the invention of canoes and the origins of fish and people. The myth makes it perfectly 'reasonable' that the descendants of primitive humans were borne by an ancestral anaconda which, as a big canoe, sailed the first river, and that they must therefore return from the other end of life in a canoe. In this way the origin of life is actualised in the fact of death. The dynamics of the journey, by analogy, deny the negation implicit in the opposition in a way that restricts the rupture. Consequently, the journey is the continuous link which holds the order of the world together.

In agricultural societies, and particularly in the Andean societies, the cosmological explanation of the social environment has other implications. The earth is the fundamental element where every social operation is carried out. For agriculturalists the earth is the source of everything, the origin of the elements, the *mater genetrix* of the social environment of humans, particularly if the society has an economy based on intensive agriculture (Eliade 1984:220). This telluric notion of the human condition derives from the relative power that people have over their natural environment, and from the affirmation of the fact that life as a natural phenomenon 'is the same everywhere', and especially from the notion that humans survive by the produce of the land. Such a concept establishes a kind of biological solidarity between the facts of ordinary life and the phenomena of nature. Thus, birth, the alterations determined by growth, reproduction, old age and the earth are articulated in such a way that everyone is correlated to the other system (nature). The fact of women's pregnancy is symmetrically joined with the notion of earth as *terra mater,* so that in many American societies it is common that newly born babies are placed immediately on the earth. This concept is illustrated by two sculptures in San Agustín. The first, from the site of Quinchana, classified in the catalogue (Sotomayor and Uribe 1987) under number 146 (Fig. 10.3), depicts a seated woman in labour, legs opened and doubled up towards her womb and with her hands on her knees. The second, found in the locality of the site of La Argentina described under number 315 (Fig. 10.4), 'undoubtedly depicts a woman giving birth to what appears to be a little jaguar' (Sotomayor and Uribe 1987:53). Such an attitude, that of women giving birth, is found in other sculptures, such as number 149 from Quinchana (Fig. 10.5); number 154 from Vereda de Tapias (Fig. 10.6); number 237 from Vereda de Sevilla (Fig. 10.7); number 241 from Lavaderos (Fig. 10.8); number 255 from El Jabón (Fig. 10.9); number 353 of unknown origin (Fig. 10.10); and of course, the lower figure in sculpture number 25 from Mesita B (Fig. 10.11) which shows the same attitude as all the preceding ones, confirmed by the opposite figure depicting an officiant holding a newly born jaguar-man by the feet.

This telluric conception of human nature as closely related to the being of the rest of nature, perhaps has its most complex correlation in the way in which the fact of death is conceived of by the American agricultural societies. If, on one side of the process, delivery on the land *(humi positio)* actualises the symmetrical opposition that makes the land fertile, then on the other hand, in the act of death, in which the possibility of rupture makes disturbance and confusion possible, the burial of the body (either as a primary, direct inhumation, *in humo,* or as the depositing of a mortuary offering, or in its secondary forms which can be found in San Agustín) implies, in the same way that the journey by canoe does, a continuous link between two contradictory terms. In some societies this idea is apparent in the rule that only children have to be inhumed while adults must be cremated. In the same way, the inhumation of adult bodies in the foetal position is a ratification of this telluric concept.

The structure of the cosmos articulated by the seven directions of the Kogi from the Sierra Nevada is the most synthetic structure explaining the spatial worlds of the wild mind. From the point 'in the middle', that for every individual is their 'here and now', the total world fragments in the possible directions made up of three pairs of opposition inside which each individual's quotidianity is adjusted. For each society the point



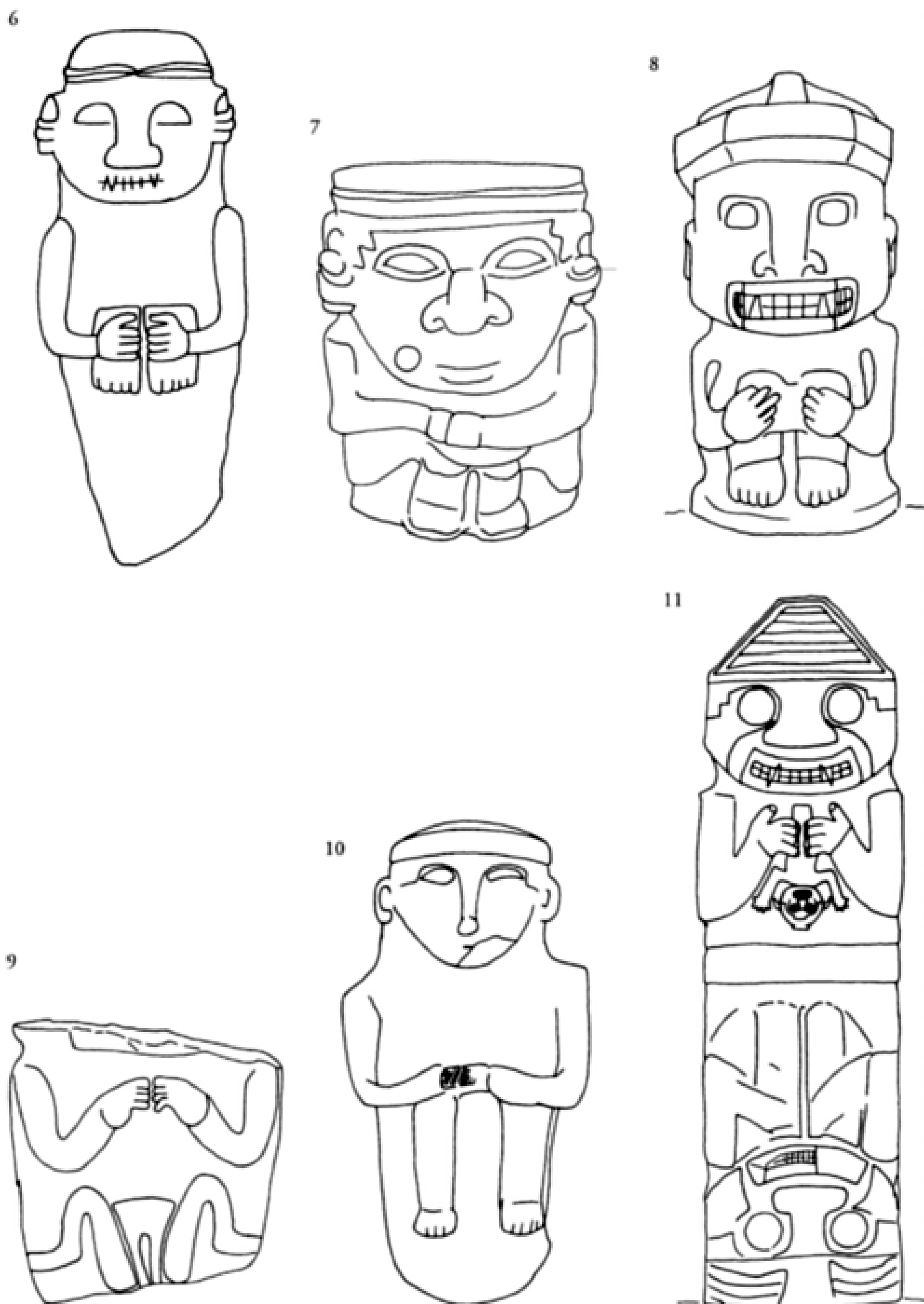
Figures 10.3–11 San Agustín sculptures from various sites depicting women giving birth on the ground *(humi positio)*.

'in the middle' is the centre of their possible world on which their notion of humanity is based. This point is demarcated from its origin. According to Reichel-Dolmatoff (1975:205),

> the Universal Mother, the only owner of the art of knitting and spinning, took her huge spindle and thrust it vertically through the newly created earth, put it in the centre of the Sierra Nevada, through its highest peak, and said: This is the *kalvaksánkua,* the central pole of the world!

The establishment of a centre, whether it is the centre of the *malocas* in the Amazon, or the place where the totemic poles are placed in the long houses of Northwest Coast villages, or the place where the magic 'liana' falls down and communicates the above with the below, etc., concerns the construction of cosmic architecture. By means of the projection of spindles, of a post thrust through the centre of a clearing in the middle of the rainforest, or of an arrow fired by the cultural hero into the sky—by means of a depiction or a construction of language—such cosmic architecture makes it possible to think about the architecture of everyday life.

The centre of the world, which requires the architectural configuration of the cosmos and sacralises the demarcated space, and which is generally associated with the highest part of the landscape, permits several related points to be tied together. Due to their topological relation with the rest of the world these spaces turn into the access ways, or points of contact, that dialecticise the polar opposition of the Zenith and the Nadir (*aluna-káka* and *alunai-gui* for the Kogi), of the SKY and the UNDERWORLD, of light and darkness. My assertion that the construction of funerary spaces on the hills and mountains has a cosmic connotation should become clear. Whilst mountains demarcate the cultural landscape and the directions of the world, they also function as a cosmic axis, an *axis mundi,* in the form of a liana, a ceiba tree, or a ladder, which communicate and knot together contradictions. In unison, however, the sense of the contradiction of the opposition between life and death is staged, ritualised, mediated, on the hills and funerary hillocks, as an extension of the telluric force, as an expression of the *mater genetrix*. The funerary hills constitute pregnant wombs, the manifestation of the *terra mater,* the maternity of the earth in whose insides the mortuary



enclosures hold the propitiation of life by means of depictions of women giving birth on the ground, of

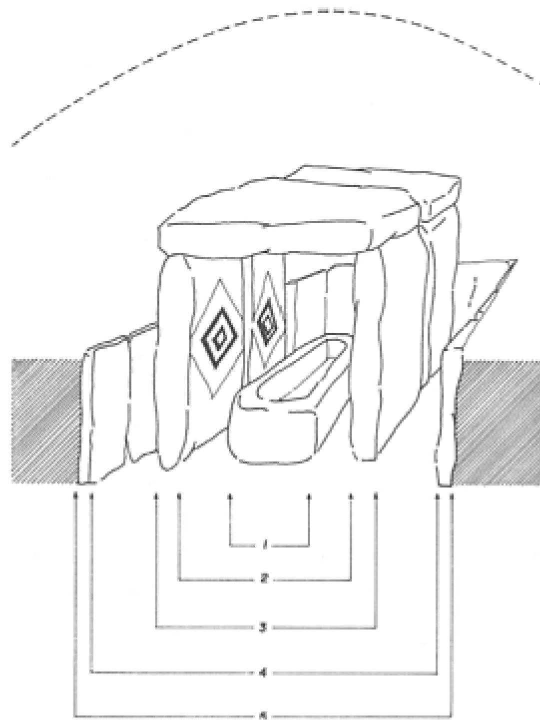


Figure 10.12 Tomb from the Mesita B site demonstrating a 'chinese box' construction of funeral space.

mythological intercourse that ensures fertility in rural properties, terraces and fields, of purification rituals that exonerate the profanities of quotidian life, of erected phalli which plant the seed needed for the continuity of the social order.

The construction of funeral space is consequently a fact of language, a product of the order that reason imposes on the arbitrariness of nature. As such, the depiction is depicted in itself, in its symbolic 'efficacy' as in a game of meta-languages which talk to each other, forming an endless *uroboros*. The architectural space of the tombs resembles the structure of 'chinese boxes', in which the structure of the first box anticipates the logic of the subsequent space. Once opened, there is a depiction inside, in another box, of another predicted space. In the Mesitas A and B of the Archaeological Park of San Agustín, in the Alto de las Piedras, and especially in the Alto de los Idolos, we find this strange way of projecting space. If we bear in mind the space defined by the earthen walls and count from outside to inside, it is possible to enumerate up to five 'chinese boxes' (Fig. 10.12). The earthen wall constitutes the first box; the covering of thin stone layers forms a second; the space between this and a sarcophagus establishes a third; the sarcophagus defines for the body a fourth; and if the whole complex is inscribed in a hillock, we will have four boxes inside a fifth. The find of 'a whitish, clayish layer of earth…placed between the walls of the chamber and the sarcophagus with ceremonial purpose because inside it had…funerary offerings consisting of several very thin golden plaques…with holes…[and] tubular beads' (Duque Gómez and Cubillos 1979:25), in the Mesita C, supports such an attempt at demarcating and assembling these very particular enclosures. This fact has its most complete expression in the majority of the mentioned tombs, where the space between the laminas or

slabs which cover the tombs and the wall of the sarcophagi are resplendently illuminated by four cosmic colours.

THE COSMIC SIGNIFICANCE OF THE CULTURE OF SAN AGUSTÍN

It is my purpose neither to causally relate the archaeological culture of San Agustín to some contemporary Amazonian cultures, nor to explain the 'meaningless' forms of the former by means of the ethnohistory of the latter. Of fundamental interest is to look for a logic which enables a more coherent and reasonable methodological perspective to be produced, with respect to which other perspectives can be contrasted. My central proposal is that the culture of San Agustín must have had a significant, formal structure similar to those of societies such as the Barasana, Ufaina, Kogi, Huitoto, Cuna, Desana, Waunana, Cubeo or Curripaco, which have been partially revealed by ethnohistory and social anthropology. It is further proposed that the totality of their archaeological 'odds and ends' must therefore be articulated according to a model congruent with the functions and relations of the cultural model of these societies. Similarly, the structure of the culture of San Agustín, as well as its functions and relations, must have an identical system of permutations and transformations in respect to the structure of other American cultures. In other words, the model elaborated to understand the culture of San Agustín must find a relation of symmetrical opposition in other cultures that explains both the fact of their relative diversity and the unity of their structures of thought.

If we observe a sculpture at random (excepting the realistic depictions of animals) we find that it is made up of the articulation of natural elements dealing with different animal forms which are 'syncretic' in a representative structure different from that of the particular forms of which it is constituted. Furthermore, in almost every case the basic structural reference is the human figure. Here lies one of the radical differences between the operations of our logic and the logical roughness of these other societies. Even if the mechanism of either one or other logic, that of the mythopoetic discourse in the wild societies and that of common sense in our contemporary civilisation, has analogy—or 'thought by resemblance' (Foucault 1979: 26)—as their operating principle, they are still not equivalent, because 'reasoning by analogy is oriented. It is not the same to conceive of culture analogically with respect to nature…as it is to conceive of nature analogically with respect to culture' (Godelier 1974:370). In contrast to our anthropomorphic vision of nature, of nature conceived from culture, the wild mind creates a zoomorphic perspective of humankind—culture conceived from nature—in which neither the references nor the links established by the relations and games between things, between things and humans, between other beings and humans (or between individuals and society) are ever outside or apart from natural phenomena. Consequently, there is neither logical 'oddity' nor contradiction in the mythopoetic explanations according to which the origin of the human is necessarily imbricated in the narrations about the origin of things and natural phenomena. For example, 'the Caduveo (M33) tell that the demiurge has taken humanity from the bottom of a lake, from where men went out furtively to steal fish until the moment when a bird on sentry gave the alarm' (Lévi-Strauss 1968:118). Furthermore, according to the Matako (M32), 'in another time men could speak. They did not have wives and they fed on large amounts of fish caught by themselves. One day they found out that somebody had stolen the provisions and they recommended that a parrot be on guard. Perched on a tree, the parrot saw some women sliding down a rope from the sky' (Lévi-Strauss 1968:117).

There is a series of myths about the jaguar which have elements of this intricate logic, in which the jaguar saves the hero and teaches him the art of fire and cooking.

> [nevertheless] Man and the Jaguar are polar opposites. The one eats raw food while the other has it cooked. The Jaguar devours men but Man does not eat Jaguars. There is no reciprocity between them… But in the myths all the 'cultural belongings' Man has come from the Jaguar. That is to say that since mythical times, the Man and the Jaguar have exchanged their roles. This means that [before] there may have been some reciprocity between them. And it is true that the Jaguar has a human wife. In many myths, the Indian wife of the Jaguar plays an important role opposed to the cultural hero. However, once the belongings of the Jaguar have been taken by the Man (who generally steals the fire from him), then the link breaks and the human wife of the Jaguar is destroyed.
>
> (Yalman 1970:114)

Indigenous myths are historicist in two senses. On the one hand the narrations always refer to a particular reality, and also always explain the existence of that reality. The myths are an answer to the question that an indigenous child might ask, such as why the moon has its face stained, or about the colours of the rainbow. On the other hand, the explanations that a shaman must give have to be sought in the origins of things, in the memory which was conferred upon societies with no writing by the security of making themselves part of history.

Once the matter of mythopoetic logic has been cleared up, then saying that the iconography in the statuary of the archaeological culture of San Agustín is anthropomorphic has a meaning completely different from our understanding of it. The iconography of San Agustín is definitely not the description of a pantheon of deifications of humankind, but rather is an attempt to understand and explain reality in order to be able to act upon it. Since humans are not outside nature—which is the reality for the wild human—then that reality would be incomprehensible without the relationships, ties and links that make the existence and survival of humans possible.

I stated above that the structure of the cosmos represented in the iconography of San Agustín should be considered as constructed with a logic similar to that of the cosmos of contemporary indigenous societies or pre-Columbian societies that we know through archaeology. Bearing in mind the diversity that such structures may have, and that it would be impossible to contrast them one by one until a particular correspondence was found, I prefer to propose a basic model which combines the elements found in every case independently of their level of complexity. The model is constructed from the most simple scheme of relationships that can define a space as a cosmos. It is composed of the spatial references that, on a plane, define the 'four directions of the world', which are determined by the 'celestial' phenomena of EAST–WEST and SOUTH–NORTH. The relative position of a person placed on this plane determines, by means of the same set of oppositions, a superior maximum point above, ZENITH, and an inferior maximum point below, NADIR. The opposition of these points defines a line perpendicular to the plane established by the first four in whose intersection a seventh place is determined, the point 'in the middle' (according to the Kogi). The relative movements of the celestial phenomena turn this line into an axis of a cosmos sensed as circular, an *axis mundi* in whose direction 'the ladder that communicated men with *Kagarabí'* passes (according to the Embera; Pardo 1987:74), and that which constitutes '*Kalduksánkua,* the place where the central pole of the world was thrust in the beginning by the Mother' (according to the Kogi; Mayr 1987:63).

This framework rules the set of transformations and permutations of every phenomenon; the mechanisms of the logic of the model must be adjusted to fit it. Seen from the perspective of a human placed on the plane of the environment, where plants, the water of the rivers and lagoons, animals, mountains, the *maloca,* crops, and so on are found (where the vital functions are carried out), this world becomes the field where the conflict among the forces giving life to nature starts. Thus the rain, earthquakes, thunder and lightning, the flowing of day and night, fire, the stars, the rainbow, etc., that affect and modify whatever is

placed in the world, appear as alternatively balanced forces under some determined conditions, and as unchained in another set of relationships. The appearance of phenomena necessarily links every reference in question. As such, the system of opposition in language reduces every cosmic conflict to a set of representations. Phenomena become polarised, apparently coming from above or from below. The storm appears to come from above, just as the water on the river seems to come from below; but the rainbow, which is objectively related to the rain and the sun seems to come out of the world of below and then return to it. Furthermore, the rainbow is related genetically to the coloured serpents that dwell in it and therefore to venom and illness, which is the reason why in almost every American society the rainbow is ominous.

Consequently, the cosmos is segmented into minor totalities or, rather, into sets of phenomena and facts that are articulated according to the position or relative space that they fill. To explain this in a simple way I am going to appeal to an analytic procedure based on the logic of opposition of propositions, from which I merely adopt a scheme of opposition of categories according to their relative position or subalternation with respect to a set or totality. The environment of the quotidian relationships of the social groups forms a totality that I call the WORLD, which is placed on the plane of intersection of all the cardinal points.

In the cosmos of the culture of San Agustín, MAN, WOMAN, the JAGUAR (*Felis onca,* or felines) and the MONKEY, taken as elements, are all related, forming a first set of relationships (Fig. 10.13). Another set is formed by the CAIMAN *(Crocodylus intermedius)* or alligators, the IGUANA *(Iguana iguana)* and the FROG. A third set is composed of the ANA-CONDA *(Eunectes murinus gigas)* or boas, *(Boa constrictor),* the aquatic SERPENTS and the FISH. The first group is placed in relation to the space and the phenomena of the EARTH (fire, hunting, housing and agriculture). The other two sets are linked with the place and the phenomena of WATER, from the rivers and lagoons (whirlpools, movement, fishing, canoes and fertility).

These referents and the phenomena in which they are inscribed oppose as a totality the two sets (polar opposites) of the ZENITH and the NADIR, which I call the SKY (in the sense of place of the celestial bodies) and the UNDERWORLD. Included in the former are the SUN (the MOON and the STARS are not definitively distinguishable in the iconography), the HARPY EAGLE *(Thrasaetus harpyia),* the KING BUZZARD *(Sarcoramphus papa),* and the RAINBOW. These elements are placed in relation to the space of the celestial bodies and the alternation of day and night (meteors, light and heat). The UNDERWORLD is the space of the beings and phenomena related to illness, venom, the cold, darkness and poisonous SNAKES, such as CORAL SNAKES *(Micrurus wagler)* and BATS (see Fig. 10.13).

The scheme concerning the logic of opposition explains the relations as follows. The SKY and the UNDERWORLD are opposed as contraries since they are polar opposites and each one of the elements that forms these sets is subordinated to each group as parts of a totality. Consequently, the subordinates of a group oppose those of the other as sub-contraries.

The EAGLE appears in a relation of contradiction with the space and the relationships of its contrary the SERPENT, whilst also in a position contradictory to the opposite space, the SKY. Each pair of references, independently of its way of opposing, constitutes a minimum relational unit endowed with meaning according to the way it articulates with the model. Each pair of references within the discourse or mythopoetic text forms a mytheme, and the articulation of mythemes determines the formation of iconographic units. The subsets are linked to each other, forming vast chains or sets of relationships. These relationships are represented in the following way:

EAGLE : SKY :: SERPENT : UNDERWORLD

The main use of this type of analysis consists not only in fixing the referents that constitute the icons, but also in differentiating the relationships and links between one and another element or icon. As an example, I

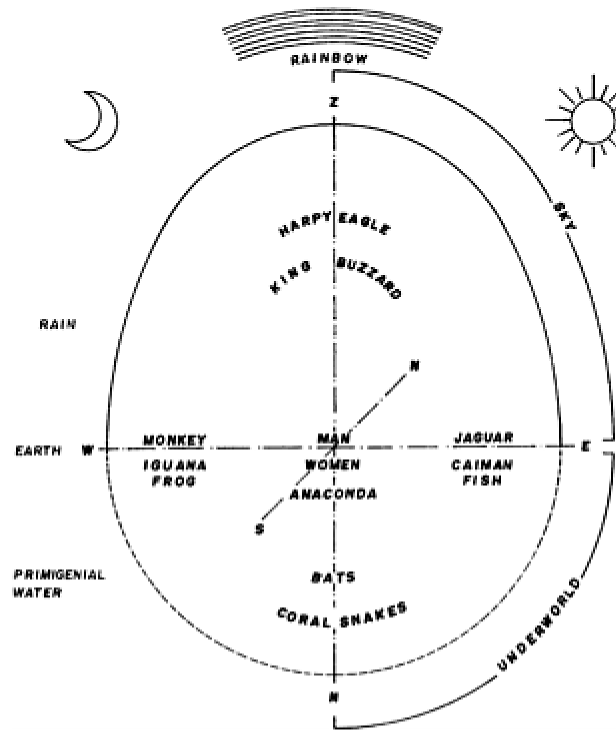
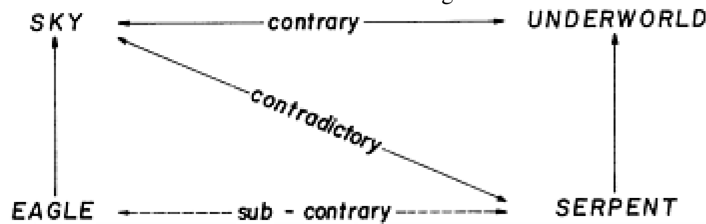


Figure 10.13 Structural model of the cosmos in the culture of San Agustín.



will refer to sculpture number 40 in the Sotomayor and Uribe catalogue (1987:52; see Fig. 10.14), that is presently found in the 'Bosque de las Estatuas' in the Archaeological Park of San Agustín. This piece, which originates from Mesita B, shows the following characteristics. The structure is anthropomorphous: the body is divided into two parts, of which the upper conforms to the head, while the rest of the body is limited to the dimensions of the lower zone. The highest part of the head is formed by a set that consists of the actual head, the headdress on the forehead which forms a fringe and a decorative element similar to other headdresses that, due to their relation with other elements in other sculptures, we have interpreted as made from animal skins, in this case that of a bird. The eyes have the structure of the eyes of eagle-like birds (specifically of the harpy EAGLE), which can be observed on other sculptures. The nose is human and the mouth anthropomorphous. The mouth constitutes another structure due to the presence of the fangs of the JAGUAR, and hence its association with other elements. The figure is sitting with arms folded on the womb, holding a RATTLESNAKE *(Crotalus durissus)* in her hands that twists very expressively, forming a knot in the middle. The referents that form the mentioned piece are:

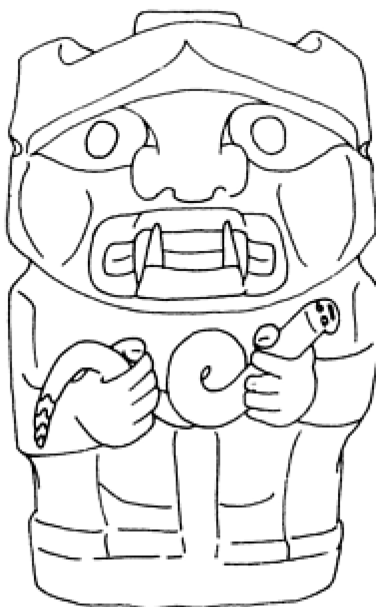


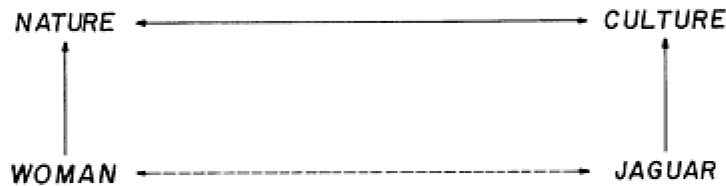
Figure 10.14 Sculpture currently found in the 'Bosque de las Estatuas', Archaeological Park of San Agustín.

MAN : EAGLE : JAGUAR : SERPENT

The relations are constructed in the following way: the four referents make part of two 'crossed' relations which correspond to two perpendicular planes in the model of the proposed cosmos. The poisonous SNAKE is opposed to the EAGLE, and the UNDERWORLD is the polar opposite of SKY. This plane is crossed by the relation between the JAGUAR and the MAN who moves on the plane of the WORLD. The WORLD works because of the reasons given when the model was explained, as a mediation among the polar opposites taking the contradictory terms as a unit. As such, the mediations 'dialecticise' the opposition and make the unity of diversity possible.

The relation between the MAN and the JAGUAR, both understood as mythopoetic references, cannot be established directly without mediations. To establish such a relation it is not enough to recognise that the two terms make part of the totality called WORLD, but it must be understood that this is also a historical product. Firstly, it is necessary to understand that the relation is a type of mode of articulation with the complex plot of relationships that determines the structure of that world. To be precise, it cannot be explained in the margins of such a 'history'.

The relative importance that researchers have given to the depictions of felines, especially of the jaguar in the iconography of San Agustín, is due in particular to the association between this culture and other apparently similar cultures in the Central Andes, such as the assumed 'maternity' of the culture of Chavín de Huantar, and descriptive generalities such as that which states that every mouth with fangs is a feline mouth (Lathrap 1982). The depiction of the jaguar is actually very important, but for different reasons. It appears linked directly to humans in the origin myths of Amazonian and Andean mythography. Either the jaguar is presented as the dispenser of cultural benefits or humans are understood to be derived from the wild love between a mythical jaguar and a primitive woman. The relationship always implies a step from nature towards culture.

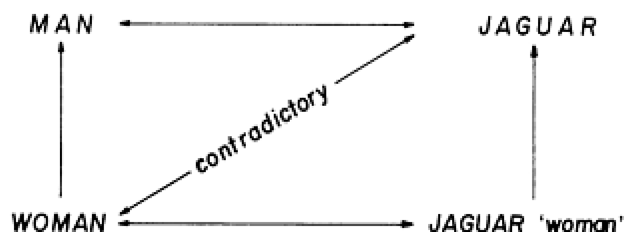


Bearing in mind the explanation by Yalman (1970:105–26, see above), I previously described how the JAGUAR and the MAN are polar opposites of contradictory propositions, in spite of the fact that all the rest of the elements of the text are gathered as the principle or basis of any process. While the JAGUAR eats raw food, the MAN has it cooked; and while the MAN kills JAGUAR and does not eat it, the JAGUAR kills men and devours them. Apparently the two relations are coherent as concerns the conditions of RAW or COOKED, but both depend on a third element, FIRE. According to the same myth, FIRE belonged exclusively to the JAGUAR until the MAN stole it from him through trickery. Before this event the jaguar had eaten cooked food. From this moment on, the WOMAN was in charge of cooking the food and turned into the necessary mediation to dialecticise the extrapolation of the relation MAN : JAGUAR. That polarity is fully expressed when humans do not eat the jaguar they hunt, as this would mean negating themselves since they would be denying their origins. In another myth the relation of polarity is transformed, as MAN is none other than the son of the JAGUAR. As such, people hunt jaguars, skin them, tear out their claws and fangs and, attired like shamans with these elements characteristic of the JAGUAR, they turn into jaguars with the purpose of actualising the myth.

The fact that MAN and JAGUAR hunt the same animals places them in a relation of reciprocal opposition, since if MAN is a hunter it is because his mythical father is the JAGUAR, in such a way that when competing for the same game, the JAGUAR is being denied. The contradiction breaks like a chain at its weakest link: the WOMAN. She happens to be responsible for the contradiction, not only because she is the mother of MAN, but also because by giving birth to more men she is giving birth to more hunters, so that the jaguars have greater difficulty in finding food. As such, a contradictory relationship derives from WOMAN and the JAGUAR. As a consequence, the relationship MAN : JAGUAR is established through the WOMAN. Whichever way she opposes, WOMAN will always have a contradictory relationship with the JAGUAR. The first relation opposes directly WOMAN and the JAGUAR, with respect to the step from NATURE towards CULTURE. WOMAN is a fact of NATURE, as she generally derives from a lagoon, or is sent from heaven hanging from a liana, while the JAGUAR, owner of cultural belongings, is a fact of CULTURE. Hence:
This pair of oppositions is stated thus:

WOMAN : NATURE :: JAGUAR : CULTURE

The reciprocity between the JAGUAR and the WOMAN reaches this point. The result of their mythopoetic love is the birth of the MAN-HUNTER (man because he is the man of the WOMAN, and hunter because he is the son of the JAGUAR) who shrewdly cheats the JAGUAR and steals the cooking fire from him. The relation is transformed, shifting the JAGUAR to the boundaries of NATURE, and the WOMAN, now owner of the cooking fire, to the home of CULTURE. Henceforth, according to the myths of several cultures, jaguars ambush women and attack or rape them, and the jaguar ‘women’ tear the hunters to pieces, deceiving them with their woman-like appearance. The relation is presented as follows:



The statement WOMAN : MAN :: JAGUAR 'woman' : JAGUAR, shows how, while the opposition MAN : JAGUAR polarises as a contrary relation, the resulting opposition between MAN : JAGUAR 'woman' and WOMAN : JAGUAR is resolved as a contradictory relation.

The explanatory key to understanding a determined relation is not always found in the same icon: it is necessary to look for it transformed into another icon or into another set of relations. In this case, the search takes us to La Parada, 8 km away from the Archaeological Park of San Agustín, in the Vereda Arauca. Among other difficult-to-locate pieces scattered by *guaqueros* is that found in the catalogue under number 210 (Sotomayor and Uribe 1987:129). This sculpture represents a set of three characters who form a scene. The dominant figure is a JAGUAR that overpowers the figure of a woman while it grasps a little child in the hands of its rear legs (hands not claws; see Fig. 10.15). The animal figure is undoubtedly that of a jaguar, judging by the structure of the head, the position of the legs, and the body literally lying on top of the woman's body She is also undoubtably a woman: the facial expression, the hair parted at the front, the cork ear-pieces and the arms folded on the gravid womb define her clearly. The baby, placed sideways, is held by

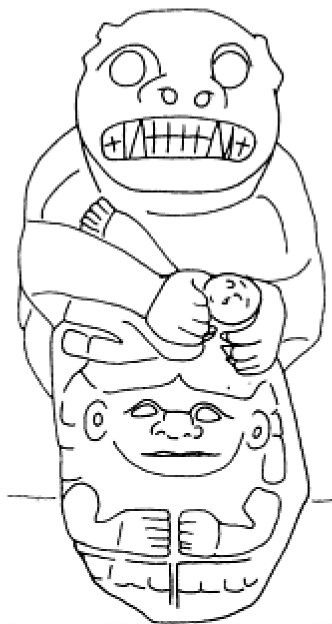


Figure 10.15 Sculpture depicting a jaguar overpowering a woman, La Parada site, Municipality of San Agustín.

the jaguar with one of its hands under the child's head and the other one on the body. A careful observation shows that the baby has inter-crossed fangs. Several sculptures in San Agustín give rise to the suspicion that

an explanatory myth of this very particular relation is being given, but in no other is the case exposed in such a clear way.

With respect to the interpretation of this piece, Reichel-Dolmatoff (1972:53) has attempted an iconographic analysis, although using different analytical resources. He reconsiders some inferences held since the time of Preuss:

> As an archaeological starting point [to begin an iconographic analysis] I shall use a group of San Agustín stone carvings which appear to be of special interest. I am referring to certain sculptures which show a jaguar in the act of overpowering a smaller figure which represents a human being. Until early this year (1969) only one sculpture of this type had been known, designated in the literature as the 'monkey group', a name introduced some fifty years ago by Preuss who interpreted the main figure as that of a monkey because of the coiled tail-end which recalls the prehensile tails of New World simians, and who thought that the sculpture represented an adult animal with its young.
>
> A reexamination of this stone carving, however, does not bear out this identification and it rather appears that the animal is a jaguar copulating with a woman. As a matter of fact, the broad head and the snout are not at all like a monkey's, and the posture of both figures certainly does not correspond to the way monkeys carry their young. The important point, however, is the recent discovery of another sculpture which is very similar in composition and which shows, beyond any doubt, a jaguar which overpowers a human figure that has marked female characteristics. Besides, the jaguar grasps the figure of a child which lies across the back of the female figure. The most significant detail is that the end of the jaguar's tail is coiled in a spiral, showing that Preuss's interpretation of the first sculpture as a monkey was erroneous, since this type of tail corresponds to a jaguar.
>
> (Reichel-Dolmatoff 1972:53)

The three characters of the sculptural scene of La Parada have their correlation with sculpture 25, in which the birth of the MAN-JAGUAR is depicted (Fig. 10.11). The WOMAN is upside down and grasps her knees with her hands, holding her legs folded against her body; her unmasked face is deeply wrinkled, which gives her a pained expression. On the opposite side, an officiate attired with a feline-like mask, FROG eyes and a trapeziform headdress divided into five horizontal bands hanging down his back on a hide, grasps a boy with inter-crossed fangs by the feet.

To conclude, according to the model of the cosmos proposed for the culture of San Agustín, the oppositions mediate some referents with respect to the others. The referents of the WORLD are polarised simultaneously with those of the SKY and with those of the UNDERWORLD in a set of relationships:

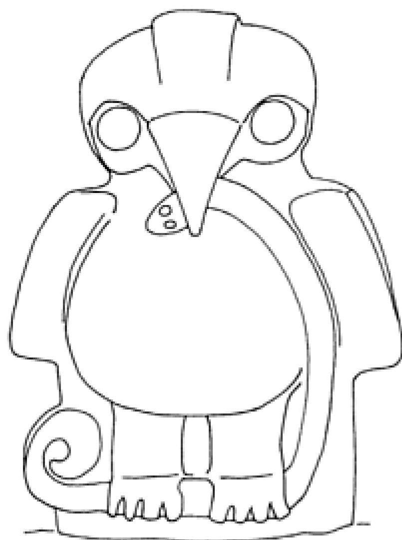
JAGUAR : WORLD :: EAGLE : SKY

JAGUAR : WORLD :: SERPENT : UNDERWORLD

Thus, if A : B and B : C, then

EAGLE : SKY :: SERPENT : UNDERWORLD

These relations work the same for all referents as long as their relative positions are observed. For example, IGUANA, CAIMAN, FROG, ANACONDA and FISH, due to their amphibian condition (they live in two different worlds), do not have the same way of opposing their rivals. The CAIMAN and SERPENTS are not excluded, since their structure is syncretised with the structures of the ANACONDA, the FROG and the IGUANA. The KING BUZZARD (Velandia 1994:117) from its empyrean and the

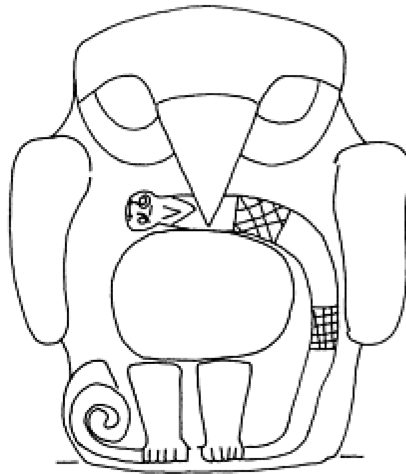


Figures 10.16±17 Two examples of a 'harpy eagle' with snake.

HARPY EAGLE appear to be the polar opposite of the poisonous snakes. However, the relation is different in each case. The HARPY EAGLE is a bird that preys on raw food and its habitual diet includes serpents, as is depicted in a well-known sculpture of the Mesita B (Sculpture 22; see Fig. 10.16) and in another very similar sculpture in the Cerro de la Pelota (Sculpture 163; see Fig. 10.17), whereas *Sarcorhamphus papa,* which is also a bird of prey, only eats carrion. According to the culinary rules of the rainforest the character of rotten is equivalent to that of cooked, since it deals with transformed food. Nonetheless, vultures have the reputation of being immune to venoms and illnesses, as no other animal can bear their diet. As such, they have a particular rank. According to the indigenous peoples of Surinam, for example, 'up there lies all the science of the vulture' (Lévi-Strauss 1968:271). This condition situates the KING BUZZARD in a relation of symmetrical opposition because, at the same time as it opposes the SNAKE (coral snakes) due to its context excluding it as an opposite, its other virtues mediate the polarity. The KING BUZZARD eats the product of death that is caused by the and illness. Finally, it should be remembered that both the KING BUZZARD and the CORAL SNAKES glisten with the same polychromia.

INTERRELATIONSHIPS BETWEEN SAN AGUSTIN AND OTHER AMERICAN CULTURES

As with many other themes concerning the archaeological cultures of San Agustín (and the other pre-Hispanic American cultures), that of the possible historical relationships between these and other cultures is in a real explanatory Sargasso Sea, gradually amassing in spite of the analytical difficulties and of the lack of reliable archaeological information. The first sketches which gave a total explanation of the culture of San Agustín are elaborated from within a diffusionist perspective, which was the dominant paradigm in the historiography of American primitive societies of the epoch. What was in the 1950s a theoretical superstition is now assumed to be correct by almost all historians in Colombia. Consequently, the suppositions of turn-of-the-century diffusionism are still present in most of the explanations of the historical relationships of the culture of San Agustín. The important explanations are those which find a certain 'air of familiarity' between the forms of San Agustín, the forms of the Olmec culture in Central America, and Chavín de Huantar in the Central Andes, and, less emphatically, with some Mesoamerican cultures, such as Ahuachapan (El Salvador), Golfo de Nicoya (Costa Rica), Chorotegas and Chontales (Nicaragua), and with



others in South America, such as Manabi (or Manteña) and Machalilla (Ecuador), Cupinisque, Pucará and Huaraz (Peru), to mention but a few. The diffusionist notions of history and particularly of culture necessarily conceal an Edenic SERPENT, but it does not die because it controls venom illusion about the origins of humans and society that, paradoxically, was developed at the expense of the Age of Enlightenment. In what follows, I try to explain how and with which theoretical assumptions a diffusionist explanation—adorned with traces of other 'isms'—has been elaborated for the culture of San Agustín. Finally, I will make a proposal to clarify the situation. As such, I will attempt to deal with two specific cases: the solar cult, and the feline cult.

The two themes mentioned above are hypothetical-deductive interpretations from summary information found in the work and investigation reports of the San Agustín culture's first historians. As such, Cuervo Márquez (1956 (1920)), Preuss (1947 (1931)), and Pérez de Barradas (1943) demonstrate a notion of American prehistory which undoubtedly concerns the time of the most sensational archaeological discoveries in Egypt and the Near East. With an edifying European vision they spare no analogy, sharing, as they do, the mechanistic perspective of nineteenth-century theories. As such, the positivist style that entitled a search for the immanent laws of history which would determine that history happened the same way everywhere, and the influence of the historicist concepts of Morgan (1973) concerning the development of societies—brought together later by Engels (1972)—permitted an explanation that attempted to show that the culture of San Agustín dealt with the same stage of megalithic cultures that came into fashion through the excavations in Brest, France and Cornwall, England.

Tello (1943), the first of the American Americanists and Uhle (1923), a German Americanist, gave rise to a debate that still has many expositors on both sides. Contrary to the supposed Mesoamerican origin argued for by Uhle, Tello argued in favour of the old idea of Chavín de Huantar as the cradle of the Andean cultures, which characterised certain significant features of the ancestry of a mother culture in the Central Andes. This thesis was accepted almost directly by academics who theorised on the theme of Americanism (which came into fashion in Colombia in the 1950s), including Duque Gómez (1964).

The proposal that a solar cult may have developed in San Agustín comes from the archaeology of the 1940s that applied Spengler's (1958:60) 'Cyclic Theory of History' and the diffusionist explanations of Smith (1928). Such explanations were vouched for by the findings in Egypt and Sumer, civilisations which

were considered 'heliolithic' because they had the sun and stone as symbols, or 'heliocratic' because they worshipped only the sun.

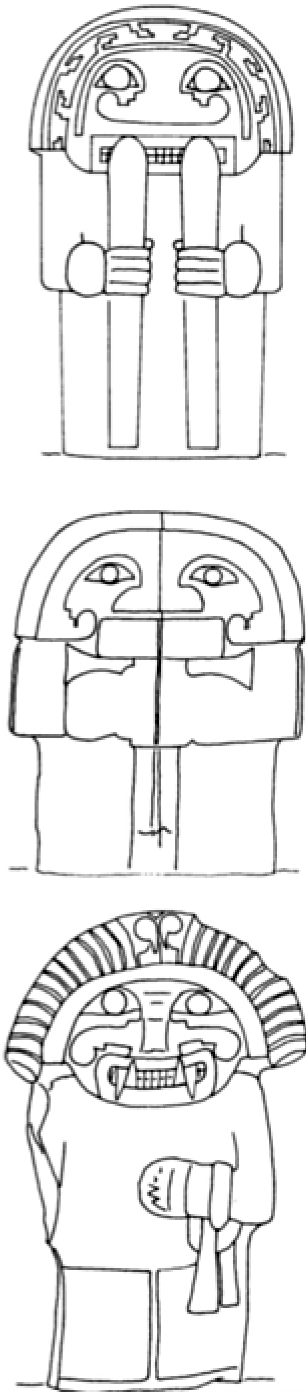
The supposition of a solar cult in the Regional Classic Period, when the feline symbolic character rules, and a subsequent lunar cult, where fertility rituals were important and the female aspect was associated with agriculture, was updated by Llanos (1990b) in his work on the historical process of San Agustín in the Valley of Laboyos. He associates the relationship between the two cults with a so-called switch from matriarchy to patriarchy. Engels' scheme is subsequently added to the 'Heliolithic Theory' of Smith (1928), father of the romantic diffusionism of the nineteenth century, when the structures of the *sindiasmic* and *punalúa* families were taken as theoretical models of universal validity. As an approach to understanding a possible origin of the relationships that structure society it does not have the theoretical force that anthropology has amassed in a hundred years of investigation.

The feline cults are better presented in the literature as they have merited better theoretical support. However, the problem lies in the diffusionist supposition that such cults have a common origin. According to Lumbreras (1989:106–7),

> the Chavín category is used for too many things, as simple identification in the pottery of characters with either fangs or claws, which are unfailingly called 'feline'. On the other hand, when the 'feline features' appear, Chavín's presence or influence is inferred and when Chavín's origin is searched for we find out what the oldest feline depictions are.

The best statement in this respect is made by Reichel-Dolmatoff (1972). Rather than making formal analogies between similar iconographic features from the perspective of the investigator, he contrasts structural elements which can only be explained by the historical articulation of knowledge and systems of representations, all of which implies the establishment of long-distance networks through which this knowledge combined by means of such traffic. Diffusionism, which supposes historical processes to be teleological, is meaningless from this perspective, because the relations established imply the construction of networks (as explained by Sahlins, as cited in Lathrap 1981:83) with two ends from where linguistic messages—gesticulatory, iconic and symbolic—are generated. These messages permit the possibility of interchange, not only of cultural objects in the form of goods and services (coming from the 'world of things'), but also of cultural objects in the form of mythological, explanatory, and expressive intangibles (coming from the 'world of representations'). Therefore, and at the risk of appearing simplistic, if in Chavín fanged jaguars are depicted (although according to other arguments they could be caimans; e.g. Lathrap 1982:301), it is worth supposing that there must also have been felines—and therefore fangs—at Chavín and, further, that Chavín, being the oldest, was the society generating the iconography of the jaguar.

To explore the possible interrelationships between the Andean cultures, and especially between San Agustín and the high cultures of the Central Andes, we have to look for such a relationship not by means of formal analogies, but rather in the cultural referents that in each culture articulate the totality of the facts of culture that appear as 'odds and ends' to the investigator. In other words, we have to look for the links in meaning. Therefore, I develop a provisional analysis which contrasts elements of the culture of San Agustín with the culture of Tiahuanaco in the Titicaca Basin as an alternative approach. The analysis deals with the depiction of the internal structure of the female reproductive organs in sculpture 108 (see Fig. 10.18; Velandia 1994:57). The depiction is expressed as part of a mask, and similarly, though with some variations, it appears in sculptures 109 (Fig. 10.19), 111 (Fig. 10.20), 62 (Fig. 10.21) in which there is a dissection in the womb, and in 197 (Fig. 10.22) in the womb of an anthropomorphous figure with a quiropterous head.



Figures 10.18±20 Sculptures representing ritual officiates, Mesita C site, Archaeological Park of San Agustín.

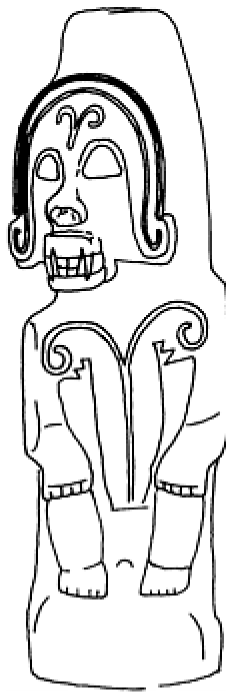


Figure 10.21 Sculpture representing the dissection of a womb.

With some variations that I attempt to explain, the same element is a constituent part of the central figure of the 'deity with two sceptres' that dominates the upper part of the Puerta del Sol in Tiahuanaco. This icon has been interpreted many times by means of formal analogy, and its wide 'diffusion' through the American continent has thus been established. Its features include a mask covering the face; two 'sceptres', or rods, or *macanas,* or dance sticks; and a ritual attitude—imprecation, exorcism or dance. It is found in this form in the blankets and fabrics of Paracas, in Chavín's friezes, in the Mochica and Nazca ceramics, in the statuary of Recuay, southwards in the ceramics of Jama Coaque, in Guangala, in La Tolita and Tumaco, in the Calima, Tairona and Quimbaya works of gold, and, of course, in San Agustín's statuary.

Apart from conjectures that can be made about formal resemblances, the advancement in the effort of understanding the iconic meaning of the statue has not been great. This is because meaning does not lie in the microcosmos of the data held in the stone, pottery or the glistening of the gold. Rather, significance is to be found in the relationships between forms and in the way the structure of such forms is articulated. As such, I refer to a structure resembling a base, or a pedestal, or a stand on which the figure with two 'sceptres' dominates the upper part of the Puerta del Sol (Fig. 10.23). The iconic elements have the same structure as the mask in sculpture 108 from San Agustín (Fig. 10.18), with the difference being the descriptive elements of the former, in contrast to the synthesis of the design of the latter. The stepped structure is defined at the ends by two puma *(Felis concolor)* masks (symmetrical element of the jaguar in the Amazon), and in the central zone, inside the body, there are six serpents ending in condor *(Vultur gryphus)* heads (symmetrical element of the harpy eagle). Four little puma heads project above the latter, and in the middle of the opened uterus a small foetus is taking shape.

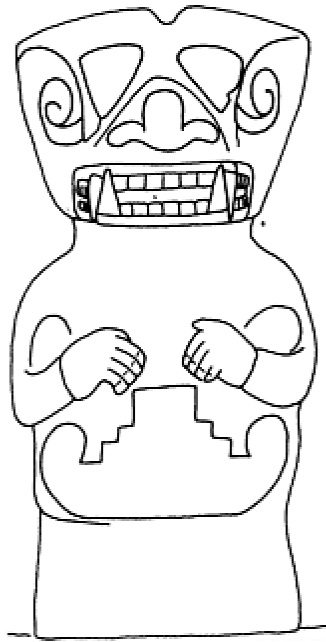


Figure 10.22 Sculpture of a figure with a quiropterous head.

The descriptions of the Puerta del Sol and particularly of its iconography always avoid the dissection of the forms and prefer the immediate correlation with other similar forms from other sites. For example, Kauffman-Doig (1983:437) wanders through the realms of likeness:

> Here we find complete scenes undoubtedly presided over by the deity [Huiracocha]. This happens in the frieze engraved on the 'Puerta del Sol'… Maybe the iconography of 'Huiracocha' and its winged escorts could be explained as an intentional archaic phenomenon, whose elements are due to Chavín… the resemblances with the character of the 'Estela Raimondi' seem to be evident, not only by the sceptres it carries, nor by its frontal representation, but also by the ornithomorphous attributes occurring in both deities with human forms.

As can be observed, doubts are impossible when faced with the evidence of resemblance. More cautiously, Leicht (1963:161) prefers to move with the inconsistencies of generality:

> This great monument of a disappeared culture [he refers to the Estela Raimondi], is almost always related to the figure enthroned in Tiahuanaco's Puerta del Sol, this comparison reaching terms of excessive similitude… While in the Puerta del Sol we have a great ceremony of worship…with a characteristic lack of symmetry… Chavín's statue follows the traditional directrices of rigid symmetry, resembling much Mexican art.

Ubbelohde-Doering (1952:48) adopts a richer language, but is no less elliptical as a result:

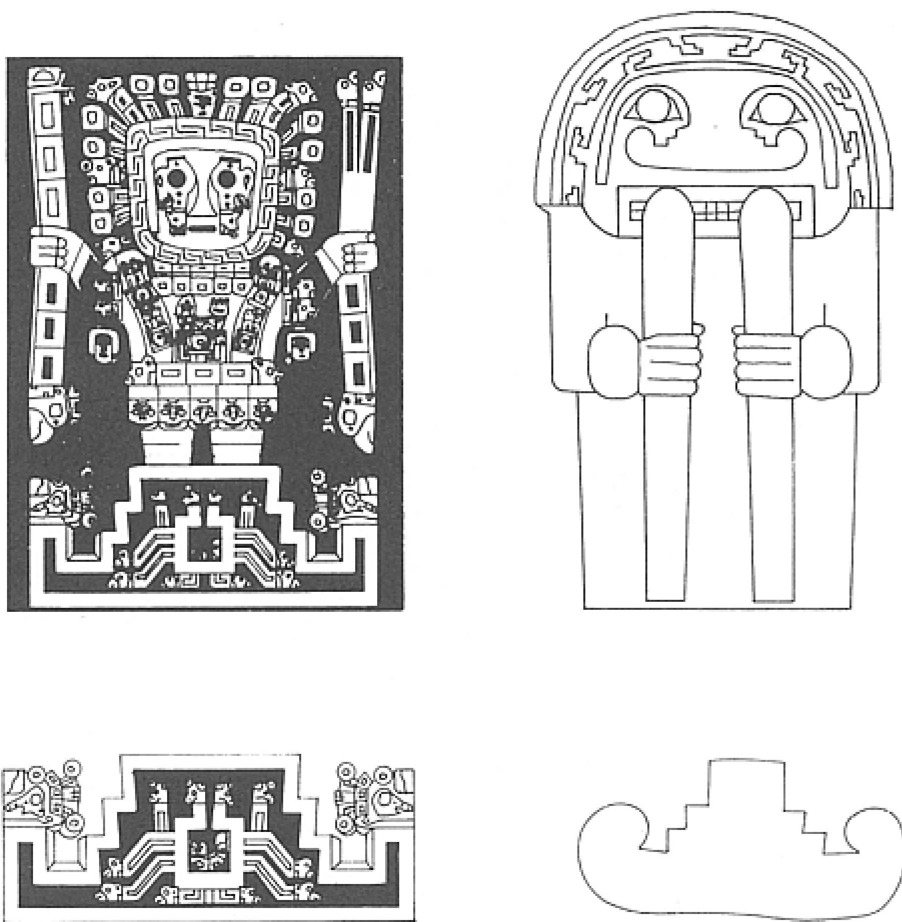


Figure 10.23 Comparison of two sculptures: the 'deity with two sceptres' from the Puerta del Sol, Tiahuanaco (left), and an officiate from the Mesita C site, Archaeological Park of San Agustín (right) (after Kauffman-Doig 1983).

> The so-called Puerta del Sol of the Tiahuanaco Bolivian altiplano, made of a single block of volcanic rock (andesita) with a frieze in relief running above the lintel, genii who head for a central figure standing on a kind of stepped throne stand out above its satellites as if showing up in confusion. On both sides, the three figures at the ends of each row of satellites are not completely engraved. Under this zone, there is a frieze of ribbons forming meanders which surround heads with rays.

Kroeber (1949:441), in an already classic article on the art of the South American Indians chooses a more valuable rather than descriptive form of analysis, but as in the above-mentioned cases, he avoids dense description:

> Tiahuanaco sculpture rivals that of Chavín… These two are the only South American styles in stone which have achieved thorough control and a degree of grandeur. Tiahuanaco is a severe style, but it avoids the representation of the monstrous and the impression of terror which lurks in Chavín's

> sculpture. With all its condors, cats, serpents and chimeras composed of these, the Tiahuanaco figures remain decoratively interesting and are never shocking or repulsive, though they may seem barbaric. It will round its corners, but the implicit design remains rectilinear—in contrast to the flowing curve which remains basic in Chavín—even when its outlines approach the rectangular. This emphasis on the severely straight line in Tiahuanaco may derive from specialities of masonry treatment, such as the strangely elaborate stereometric cutstone shapes found at Tiahuanaco itself… The relief sculpture, as in the famous monolithic gateway, is so angular as to be easily transferable to tapestry; there is even a suggestion of its own possible derivation from woven—not embroidered—textile patterns.

If all these suppositions are correct, then the analytical approach which adopts them makes control of the proposed relations impossible. Such approaches become nothing more than authorised opinions.

The icon in question is far more complex than the above descriptions. I will merely attempt to show how one could establish some analytical referents that are closer to the logic that the original context must have had, and of which the remains must have formed a part. I review this mythography bearing in mind the fact that the mythographic descriptions of the surviving primitive societies are closer to that logic than the mythological patterns of the Judaeo-Christian tradition.

A Toba-Pilagá myth from the Bolivian Chaco recorded by Alfred Métraux recounts that, 'There was a girl whose menstrual blood did not stop from flowing. "Does your menstruation never stop?", she was asked. "Only when my husband is here." But nobody knew who her husband was. Besides, the girl never stopped laughing. Finally, it was discovered that the girl spent her time sitting inside her hut exactly on top of a hole where her husband, the python, lived. They made him a trap and killed him; and when the girl gave birth to six small serpents, they killed them too. The girl turned into an iguana' (as cited in Lévi-Strauss 1968:127).

This myth is surprisingly similar to a ceremony to help women who cannot give birth, according to the tradition of the Cuna from Panama, which is narrated as a chant, or shamanistic cure (Holmer and Wassen 1947). Such curing processes were useful to Lévi-Strauss (1973:168–85) in explaining 'The Symbolic Efficacy', a form of knowledge and communication which does not have a correlation in the West, and which proves difficult to dissect. I went to such a ceremony trying to find an explanation of the strange (for me) relationship between the depictions of opened or dissected uteri and the icon of the caiman in the San Agustín statuary. To comprehend the relationship that I attempt to explain between these icons—between San Agustín and Tiahuanaco, so distant from one another—I am going to relate two instances from another symbolic context. First, the speech of a shamanistic enchantment of the present-day Cuna from Panama and, second, a myth of the surviving Toba-Pilagá from Bolivian Chaco, so remote in time from Tiahuanaco. As such, I reproduce an excerpt from the Cuna ceremony:

> The purpose of the chant is to give help at a difficult delivery It is relatively exceptional because the Central and South American primitive women give birth more easily than those of Western societies. The intervention of the shaman, then, is scarce, and occurs merely in the case of difficulties, or at the request of the midwife. The chant *(Mu-Igala)* begins with a description of the midwife; it describes her visit to the shaman, his departure towards the woman in labour's hut, his arrival, his preparations… invocations and the making of sacred images or *nuchu*. These images, sculptured in prescribed materials which give them efficacy (in the form of wands), represent the protecting spirits which the shaman makes his assistants and whose group he heads, taking them to the *Muu's* mansion, the power responsible for the formation of the foetus. The difficult delivery is explained, of course, due to the fact that *Muu* has surpassed his attributions and has taken possession of the *purba* or 'soul' of the

> mother-to-be. The chant consists entirely of a search: a search for the lost *purba,* which will be regained, after great vicissitudes, such as the demolition of obstacles, triumph over wild animals (such as *Tiikwalele,* the black *Yacaré* dwelling in the uterus of the woman in labour) and finally a great tournament between the shaman and his protecting spirits on one hand, and *Muu* and her daughters on the other… Beaten, *Muu* lets the sick woman's *purba* be discovered and set free…and the delivery occurs.
>
> (Lévi-Strauss 1968:168–9)

The two narrations—one as a chant and the other as a story—oppose each other by means of a set of symmetrical permutations. Both cases have to do with a phenomenon occurring in a specific space: the uterus of a woman, who in the Cuna chant bleeds because the Yacaré *(Melanosuchus niger)* who dwells in her does not permit her to give birth; while in the Toba-Pilagá story, the woman, barren because her husband does not live there, bleeds and does not stop laughing. While in one version the woman bleeds because she is 'closed', in the other she bleeds for the opposite reason, because whilst her husband is in an underground hole she is 'opened'. In the first case, the Yacaré—which in another text means knowledge, generating force, wombed whirlpools which give life and also attribute fertility—hinders from leaving what is already engendered. In the second case, the python *(Boa constrictor),* which in another text is a phallic symbol which penetrates and inseminates, hinders the engendering whilst he is inside. In the Toba-Pilagá story, when the python dies the girl stops laughing and gives birth to six small serpents (which coincide in another context with Tiahuanaco's lintel uterus). When these die through social punishment, the woman turns into an iguana. Here is another reference that begins another set that would explain the way the iguana turns into a caiman, which has been explained already in the same myth. The caiman of the uteri in San Agustín and the Yacaré in the uterus of the Cuna woman who could not give birth are the same. Consequently, a 'deity with two sceptres' does not reside on top of the beautiful Puerta del Sol of Tiahuanaco, but rather an officiant of cultural expressions, a man with the necessary knowledge to intervene between the things and ways of nature and the sorrows and misfortunes of the people—a shaman provided with special forces and assistants represented by his staffs (the *nuchu* in the Cuna chant). He is transformed by means of his apparel, the big mask, which endows him with the virtues and the power of the puma and of the condor. In a great ceremony accompanied by a choreography of dancers he assumes the representation and *mise-en-scène* of an origin myth. The development of the whole scene is engraved in the relief surrounding the so-called 'Bennett Monolith'.

In a recent text, Cook (1994) presents the results of a long and hard anthropological investigation carried out in the fields around Conchopata, and contrasts this material with Tiahuanaco's iconography (or Tiwanaku), which leads her to establish an interesting relationship with the development of the Wari empire. One of the arguments used to establish such a connection is based on the discovery of an offering basin in Conchopata, and some fragments of another (Fig. 10.24), in whose decoration appears what she calls a 'deity with sceptres', and which surprisingly repeats the main character on the lintel of Tihuanaco's Puerta del Sol. Cook (1994) puts forward a thesis that allows her to contextualise the material with the iconic forms of Tiahuanaco. Above all, she places the icons from sherds in line with the process which would lead from Wari to Tiahuanaco. However, what I want to discuss here is the fact that in such remains the icon confirms the described structure of the shaman who solves problems associated with childbirth.

From the already classic scheme in Andean iconology which insists on recreating the pantheons of the Judaeo-Christian tradition or those of the Old East in America, and which see deities or divinities everywhere, Cook (1994) does not find any problem in taking the character with the 'staffs' out of the context of the scene depicted in the offering basin. She then compares it directly with the forms from the

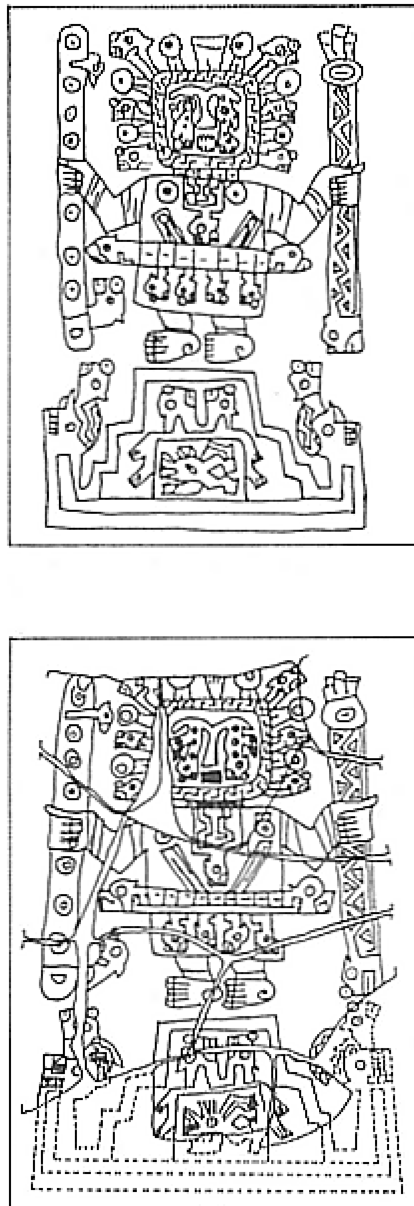


Figure 10.24 Two figures from Conchopata depicting 'deity with sceptres' (after Cook 1994).

Puerta del Sol, with the purpose of confirming that it deals with solar depiction and therefore with the same divinity. This is exactly what I have stated from the beginning cannot be done. We do not have access to the significance of the iconic forms because we do not know the structure of the signifiers. The obvious result is that when separating the figure of the shaman from the icon in its base, the possibility of joining the set is destroyed.

In favour of the argument I have proposed, Cook's (1994) discovery shows instead the way the iconic depictions transform themselves and—from the perspective of my proposal to unite the mythography of surviving indigenous societies with the structure of archaeological iconography—the way they transform themselves from one society to another, and, through time, produce a common cultural background. These sets of permutations show, in the manner of the analysis proposed by Lévi-Strauss (1968:11–40), not only how the myths can be understood, but also how they turn themselves into other myths, in a diachronic sense. At the same time, knowledge combines (and also languages and style of the depictions) by means of the establishment of large networks of long-distance relationships which make the process of communication possible, in a synchronic sense, among societies scattered through time and space.

BY WAY OF CONCLUSION

The following is a way of fulfilling the aim of this article, although neither the theme nor the questions are fully exhausted. The subject has hardly been entered into by regional programmes of research and, in spite of all the efforts made, new discoveries convince us that it is far more extensive than we imagined. New methodological alternatives, such as symbolic archaeology or the structuralist interpretation that I have proposed for problems already elaborated by other researchers, oblige at least the reformulation of the original research questions.

The main questions concerning the culture of San Agustín, such as its origins or the reason for its disappearance, have not been answered—at least, not in the way it was hoped from the old scientific preoccupation. Rethinking has not only produced many new questions, but also the adoption of new research tools. As such, the archaeology of the culture of San Agustín, and perhaps the scientific community as well, is advancing while the inconsistencies of the partial results already obtained are disregarded. For example, diffusionist notions that in other theoretical contexts, such as anthropology and history, encouraged some of the great fantasies of the travellers of the turn of the twentieth century who looked for 'El Dorado', reappear now with a different perspective through the union of diverse disciplines in another era. As such, ethnohistory and the study of American, African or Asiatic mythography allow us to see old archaeological problems with fresh eyes.

Many seductive answers have been produced for these old questions. Such answers are easy to fabricate when the lack of research leaves 'black holes' through which any old fantasy can be slipped. This was precisely the case with the possibility of interpreting the 'world of representations' of the San Agustín culture. Faced with the absence of proposals that had a theoretical foundation, it was easy to claim the validity of any opinion.

It is clear that innovations should be secured in some way within the general tendencies of research. However, the debates that were generated by processual theory and the critique of new methodological proposals have not yet demarcated clearly defined camps in Colombian archaeology Whilst theory languishes in schools, victim of 'the end of ideology and history', the practice and urgency of rescue archaeology are settling archaeology into pure empiricism. Of course, this is not a situation unique to archaeology.

I am persuaded that the progress of scientific research, and of archaeology in particular, is not driven as much by the answers that are produced as by the convictions that deny the validity of new questions that are opened up. In the end, science does not construct categorical and total answers. As the Colombian philosopher Zuleta (1997:85) says, 'science advances little by little in a world of unknowns. In order to accept [science] it is necessary to learn to live in a world of open questions which as yet have no answers.' Consequently, the relative progress of archaeological research will be determined by the better quality of our

questions. This should be our actual objective, which will ensure that in the future we produce better answers.

REFERENCES

Cook, A.G. (1994) *Wari y Tiwanaku: Entre el Estilo y la Imagen,* Lima: Fondo Editorial, Pontificia Universidad Católica del Perú.

Correa, F. (1987) 'Tiempo y espacio en la cosmogonia de los Cubeos', in J.Arias de Greiff and E.Reichel (eds) *Etnoastronomías Americanas, 45° Congreso de Americanistas,* Bogota: Ediciones de la Universidad Nacional de Colombia. 137–67.

Cuervo Marquez, C. (1956) *Estudios Arqueológicos y Etnográficos,* Bogota: Kelly Editorial, Biblioteca de la Presidencia de la República.

Duque Gómez, L. (1964) *Exploraciones Arqueológicas en San Agustín,* Bogota: Instituto Colombiano de Antropología.

Duque Gómez, L. and Cubillos, J.C. (1979) *Arqueología de San Agustín: Alto de los Idolos, Montículos y Tumbas,* Bogota: Banco de la República, FIAN.

Eliade, M. (1983) *Lo Sagrado y lo Profano,* Barcelona: Labor.

—— (1984) *Tratado de Historia de las Religiones,* Mexico: Editorial Era.

Engels, F. (1972) *El Origen de la Familia, la Propiedad Privada y el Estado,* Moscow: Editorial Progreso.

Faust, F.X. (1986) *El Sistema Médico entre los Coyaimas y Natagaimas,* Hohenschäftlarn: Klaus Renner Verlag.

Foucault, M. (1979) *Las Palabras y las Cosas,* Mexico: Siglo XXI.

Godelier, M. (1974) *Economía, Fetichismo y Religion en las Sociedades Primitivas,* Madrid: Siglo XXI.

Hildebrand, M. (1984) 'Notas etnográficas sobre el cosmos Ufaina y su relación con la maloca', *Revista Maguaré* 2, 2: 177–210.

Holmer, N. and Wassen, H. (1947) *Mu Igala or the Way of Muu. A Medicine Song from the Cunas of Panamá,* Göteborg: Etnologiska Studier.

Kauffmann-Doig, F. (1983) *Historia General de los Peruanos,* tomo I, *El Perú Antiguo,* Lima: Editorial Peisa.

Kroeber, A.L. (1949) 'Esthetic and recreational activities—ART', in J.Steward (ed.) *The Handbook of South American Indians,* vol. 5, Washington: Smithsonian Institution. 411–92.

Lathrap, D.W. (1970) *The Upper Amazon—Ancient Peoples and Places,* London: Thames and Hudson.

—— (1981) 'La antigüedad e importancia de las relaciones de intercambio a larga distancia en los trópi-cos húmedos de Suramérica precolombina', *Amazonía Peruana* 4, 7:79–97.

—— (1982) 'Complex iconographic features shared by Olmec and Chavín and some speculations on their possible significance', in J.Marcus and P.Norton (eds) *Primer Simposio de Correlaciones Antropológicas Andino-Mesoamericano,* Guayaquil: Escuela Superior Politécnica del Litoral. 301–27.

Leicht, H. (1963) *Cultura y Arte Preincaico,* Madrid: Aguilar.

Lévi-Strauss, C. (1968) *Lo Crudo y lo Cocido,* Mexico: Fondo de Cultura Económica.

—— (1972) *El Pensamiento Salvaje,* Mexico: Fondo de Cultura Económica.

—— (1973) *Antropología Estructural, Buenos Aires:* Eudeba.

Llanos Vargas, H. (1990a) 'Espacios míticos y cotidianos en el sur del Alto Magdalena Agustiniano', in S.Mora (ed.) *Ingenierias Prehispánicas,* Bogota: Fondo FEN–ICAN. 13–45.

—— (1990b) *Proceso Histórico Prehispánico de San Agustín en el Valle de Laboyos, Pitalito—Huila,* Bogota: Banco de la República, FIAN.

Lleras, R. (1990) 'San Agustín', in J. El'Guzi (ed.) *Parques Arqueológicos,* Bogota: ICAN. 56–85.

Lumbreras, L.G. (1981) *Arqueología de la America Andina,* Lima: Editorial Milla Batres.

—— (1989) *Chavín de Huántar—En el Nacimiento de la Civilización Andina,* Lima: Instituto Andino de Estudios Arqueológicos, INDEA.

Mayr, J. (1987) 'Contribución a la astronomía de los Kogi', in J.Arias de Greiff and E.Reichel (eds) *Etnoastronomías Americanas, 45° Congreso de Americanistas,* Bogota: Ediciones de la Universidad Nacional de Colombia. 57–67.

Morgan, H.L. (1973) *La Sociedad Primitiva,* Bogota: Universidad Nacional.

Pardo Rodríguez, M. (1987) 'Términos y conceptos cosmológicos de los indios Embera', in J.Arias de Greiff and E.Reichel (eds) *Etnoastronomías Americanas, 45° Congreso de Americanistas,* Bogota: Ediciones de la Universidad Nacional de Colombia. 69–90.

Pérez de Barradas, J. (1943) *Arqueología Agustiniana,* Bogota: Ministerio de Educación Nacional—Servicio de Arqueología.

Preuss, K.T. (1947 (1931)) *Arte Monumental Prehistórico,* Bogota: Universidad Nacional de Colombia Divulgación Cultural.

Reichel-Dolmatoff, G. (1968) *Desana, Simbolismo de los Indios Tukano del Vaupés,* Bogota: Universidad de los Andes.

—— (1972) 'The feline motif in prehistoric San Agustín sculpture', in E.P.Benson (ed.) *The Cult of the Feline, A Conference in Pre-Columbian Iconography,* Washington DC: Dumbarton Oaks. 51–64.

—— (1975) 'Templos Kogi—introducción al simbolismo y a la astronomía del espacio sagrado', *Revista Colombiana de Antropología* 19:199–245.

—— (1985) *Los Kogi, una Tribu de la Sierra Nevada de Santa Marta,* Bogota: Procultura.

—— (1988) *Orfebrería y Chamanismo, un Estudio Iconográfico del Museo del Oro,* Medellín: Colina—Banco de la República.

Saunders, N. (1998) Architecture of symbolism. The feline image', in N.Saunders (ed.) *Icons of Power,* London: Routledge. 12–52.

Smith, G.E. (1928) *In the Beginning: The Origin of Civilization,* New York: William Morrow.

Sotomayor, M. and Uribe, M.V. (1987) *Estatuaria del Macizo Colombiano,* Bogota: Instituto Colombiano de Antropología—ICAN.

Spengler, O. (1958) *La Decadencia de Occidente,* Madrid: Espasa-Calpe.

Tello, J. (1943) 'Sobre el descubrimiento de la cultura Chavín en el Perú', *Letras Organo de la Facultad de Letras y Pedagogía* 26:266–373.

Ubbelohde-Doering, H. (1952) *El Arte en el Imperio de los Incas,* Barcelona: Editorial G.Gili.

Uhle, M. (1923) 'Toltecas, Mayas y civilizaciones Sudamericanas', *Boletín Academia Nacional de Historia* 7, 18: 25–65.

Velandia, C. (1993) 'Se perdió Teresa, se la cargó el Mohán. Modelo para un análisis estructural de las narraciones campesinas en el Tolima', *MUSEOlógicas: Revista del Museo Antropológico de la Universidad del Tolima* 1, 1: 5–74.

—— (1994) *San Agustín: Arte, Estructura y Arqueología. Modelo para una Semiótica de la Iconografía Precolombina,* Bogota: Banco Popular—Universidad del Tolima.

Yalman, N. (1970) 'Crudo : cocido :: naturaleza : cultura', in E.Leach (ed.) *Estructuralismo, Mito y Totemismo,* Buenos Aires: Nueva Vision. 105–126.

Zuleta, E. (1997) *Elogio de la Dificultad, y Otros Ensayos,* Santiago de Cali: Fundación FEZ.

NOTE

1. Translated from the Spanish by Guillermo Mateus, Universidad del Tolima, Colombia.

Chapter Eleven
Changing perspectives in Amazonian archaeology

Eduardo G.Neves

INTRODUCTION

The Amazon Basin is currently the area where archaeology has most successfully established significant research problems in Brazil. This is due to the fact that research in Amazonia has been, for nearly five decades now, consistently problem-oriented with a strong anthropological background. Such has not been the case in other parts of Brazil, where archaeology has remained more or less a descriptive undertaking without historical or anthropological concerns. These research problems are both theoretical and methodological, and they have direct implications for the archaeological reconstructions done in Amazonia and elsewhere in the lowlands of South America. Although clearly interrelated, they can be grouped into three general categories.

First, there is the investigation of the role of environmental variables in the shaping of social and cultural processes. Research on this issue in Amazonia goes back to the late 1940s, initially with a strong influence from North American cultural ecology and ecological determinism, but today with growing evidence for a criticism of such deterministic premises. This critical perspective can be placed within a general, ongoing, historically oriented revision of ecological anthropology, sometimes labelled 'historical ecology' (Balée 1995). Given the current ecological crisis related to the chaotic occupation of parts of the Amazon Basin, the results of research carried out with such a focus can have strong political consequences.

Second, there is the assessment of ethnic—particularly linguistic—boundaries in the past through the use of archaeological remains, mostly ceramics. This is hardly a unique problem of Amazonian anthropology, being indeed, for instance, a key issue in Polynesian archaeology (Kirch and Green 1987). One realises, however, that in lowland South America a number of models presented to explain contemporary patterns of indigenous language distribution have explicit or hidden assumptions about what the archaeological record of Amazonia should look like. This is because in most of lowland South America linguistic identification often goes hand in hand with ethnic identification, a trend that goes back in Brazil to the nineteenth-century research of the Bavarian naturalist Carl von Martius (1982).

Third, there is the assessment of the impact of the European Conquest over former patterns of social and political organisation in the Amazon. This issue is relevant for the anthropology of the whole American continent, but one sees again that, in Brazilian archaeology, it has become an explicit research problem only in Amazonia. The handling of this problem involves the assessment of a number of unsolved methodological questions that range from different approaches to fieldwork to different perspectives on the use of ethnographic analogies.

Owing to this situation, Amazonian archaeology is normally treated as a distinct sub-field in syntheses of Brazilian archaeology. This is the case, for instance, with Prous' *Arqueologia Brasileira* (1992), the most

complete available synthesis of Brazilian archaeology to date. But why should it be so? Part of the answer is historical: despite the importance of localised research done elsewhere, Brazilian archaeology practically began in Amazonia in the second half of the nineteenth century (Barreto 1992; Mendonça de Souza 1991; Prous 1992). In the 1870s, therefore, the first syntheses of Brazilian archaeology already had lengthy discussions of Amazonian data (Netto 1885). In the 1880s, whole monographs were written with a focus on problems of Amazonian archaeology (Barbosa Rodrigues 1888; Hartt 1885). The research efforts of these and other pioneers culminated with Nordenskiöld's (1930) short synthesis of Amazonian archaeology, which was based also on this author's and on Nimuendajú's fieldwork (Linné 1928), work that remains surprisingly fresh and original today.

To this historical precedent one should add the importance of the work of Steward and his collaborators in *The Handbook of South American Indians*. Steward's work in the *Handbook* was important in establishing models based on ecological reasoning for Amazonian anthropology. Such a trend, although probably deplored by some Brazilian cultural anthropologists, has been influential for Amazonian archaeology. Of particular interest here is the concept of 'Tropical Forest Culture', defined by Steward (1948) and Lowie (1948) in the third volume of the *Handbook*.

THE CONCEPT OF TROPICAL FOREST CULTURE: THE STANDARD MODEL

This concept was devised to describe the patterns of economic, social and cultural organisation of the indigenous populations living in the Amazon region and the tropical rainforests of eastern South America. It was also an evolutionary stage, roughly equivalent to Service's category of 'tribe' (Feinman and Neitzel 1984).

Steward's thinking was a blend of evolutionism and diffusionism (Roosevelt 1980). In this sense, he perceived the development of Tropical Forest Culture as a combination of local adaptation with strong influences from adjacent areas. Steward (1948:885) initially placed the Circum-Caribbean area as the major 'donor' of cultural traits to the tropical forest. Later on, thanks to the influence of Rouse (1953) and Meggers and Evans (1957), he also considered the lowlands adjacent to the eastern Andes as another possible source (Steward and Faron 1959:291). In any case, these models were instrumental in establishing a perspective that places Amazonia in a peripheral context in South American culture history (Lathrap 1973a; Roosevelt 1991a), a perspective that went against the acquired regional archaeological knowledge before World War II (Nordenskiöld 1929, 1930).

One consequence of this peripheral perspective is that the Tropical Forest Culture was defined as much by the lack of cultural traits—such as 'architectural and metallurgical refinements' (Lowie 1948:1)—as it was by their presence (Myers 1992). Other defining features included the cultivation of root crops, especially bitter manioc, effective river craft, use of hammocks as beds, and political decentralisation, followed by a lack of an organised temple-cult religious system because of a perceived idea of the autonomy of local communities (Lowie 1948). Among these features, paramount to Lowie (1948:2) were the domestication of root crops and the importance of water craft and river navigation. This latter trait would explain the expansion of Tropical Forest Culture over distant places in the Amazon and eastern South America. The focus on the reliance on the river networks as a key issue for Tropical Forest Culture also set the ground for the establishment of what has become a major explanatory device in Amazonian archaeology: the distinction between riverine or floodplain *(várzea)* and hinterland *(terra firme)* environments.

Virtually all archaeology carried out in the Amazon since the late 1940s was influenced by the concept of Tropical Forest Culture. In cultural anthropology, there has been growing evidence for a criticism of the

assumptions underlying such a 'peripheral' model, also called 'standard model' (Viveiros de Castro 1996). In archaeology, too, one realises there is a trend that moves from initially accepting its premises to a growing critical assessment of it. Such criticism can be seen if one looks at the different uses of ecological explanations put forward by Amazonist archaeologists in the last fifty years, mostly in their attempts to explain pre-colonial patterns of political organisation in Amazonia. However, some of the best evidence for a criticism of the peripheral perspective can be seen in the changing chronological schemes put forward for Amazonian archaeology

CHANGING PERSPECTIVES ON CHRONOLOGY

The earliest available chronology elaborated specifically for the Amazon was presented by Meggers and Evans (1961) through the definition of four 'horizon styles' for the tropical forest: Zoned Hachured, Incised Rim, Polychrome and Incised Punctate. These horizons were defined on the basis of decoration and on the types of temper found at the twenty-two ceramic complexes of the tropical forest area known at the time. Consistent with the peripheral perspective, all four horizons were ascribed an origin outside Amazonia and very short durations (Meggers and Evans 1961:381–2). Although later modified, mainly in terms of the length of each horizon which are now denominated 'traditions', this scheme has been consistently employed by Meggers and her Brazilian disciples over the years (Meggers and Evans 1983; Miller 1992; Simões and Kalkmann 1987).

Following the lead of James Ford, Meggers and Evans employed relative dating through the seriation of ceramic attributes, mostly temper, to establish their cultural sequences. This method is still employed by active lowland archaeologists trained under Meggers' influence (Meggers and Evans 1970; Miller 1992). The rationale for the employment of this procedure is based on a number of assumptions: that decorated sherds represent a small sample within a collection; that there is a wide range of variation for decorative techniques; and that slipped and painted surfaces are vulnerable to loss from erosion (Meggers 1995:20).

Over the years, the attachment to the peripheral outlook and the reliance on relative chronologies have contributed to the establishment of shallow chronologies for the Amazon (Meggers and Evans 1983). Although this perspective was being criticised from the 1960s onwards (Lathrap 1968a, 1974, 1977), such criticism, although truly innovative, was backed by little empirical data. Recently, however, there has been a growing body of evidence pointing to a fairly ancient pre-colonial occupation of the Amazon Basin, dating back to the Late Pleistocene (Roosevelt *et al.* 1996).

Currently, the earliest dates for the Amazon Basin are *c.* 10,500 BP, from the excavation of the Pedra Pintada cave in the Lower Amazon by Roosevelt and her associates (Roosevelt *et al.* 1996). Pedra Pintada is currently the best-dated site in the Amazon, with more than fifty dates obtained through different methods. Work done elsewhere in the Amazon, away from the major floodplains, also brings evidence to push the chronology back at least to the Early Holocene. These sites, however, are either not fully published or not so well dated as Pedra Pintada. They include Gavião Cave in the Carajás Hills, southeast Amazon (see Fig. 11.1), 8140±130 BP (Magalhães 1994), and the open-air sites of the Itapipoca Phase, Rondônia State, southwest Amazon, with sequences going back to 8320±100 BP (Miller 1992).

Roosevelt's (1995; Roosevelt *et al.* 1991) work with sites containing ancient ceramics has also been important to criticism of the peripheral perspective. These sites, located in the Lower Amazon not far from the city of Santarém, have provided dates that are among the earliest for ceramic production in the Americas. At the shell mound of Taperinha, the dates go back to 7090±80 BP; at the above-mentioned Pedra Pintada cave, the dates reach 7580±215 BP (Roosevelt 1995:123), so far the earliest dates for ceramics in the whole continent. Such data provide grounds to falsify Meggers' (1979:256; 1987:161)

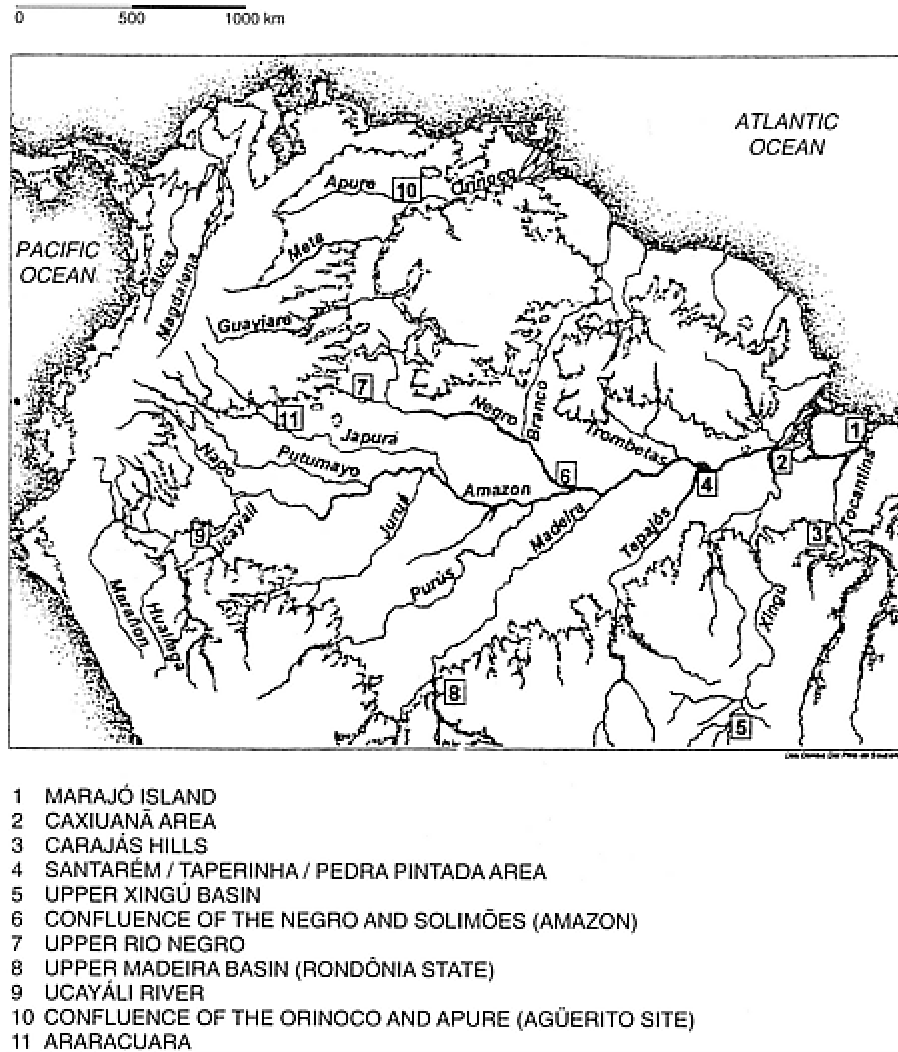


Figure 11.1 Map of the Amazon Basin showing places and areas mentioned in the text.

hypothesis that earlier Amazonian ceramics were introduced from western or northwestern South America into the Amazon.

A close Brazilian associate of Meggers, the late Mário Simões, had already excavated a number of shell mounds on the Atlantic shore east of the mouth of the Amazon that also yielded shelltempered ceramics, belonging to the so-called ‘Mina Phase’, dated to *c.* 5500 BP (Simões 1981). However, perhaps because this work was published in Portuguese, it did not receive wide recognition outside Brazil. On the other hand, Roosevelt (1995) showed that these early dates, obtained by the Smithsonian Institution laboratory, were discarded by Simões and Meggers because they did not fit their conceptual perspective on Amazonian archaeology.

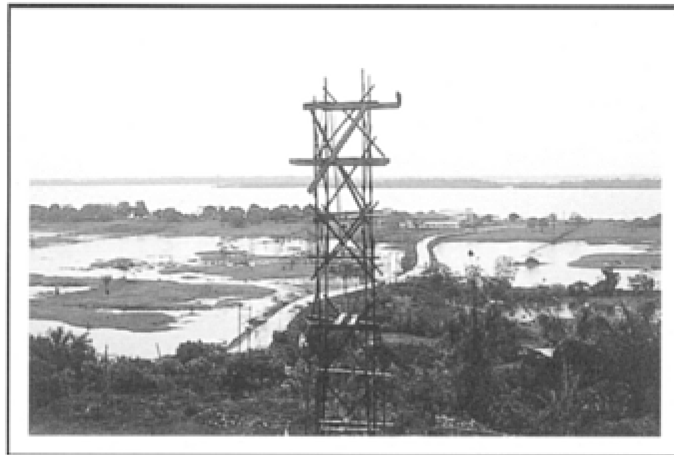


Figure 11.2 View of the *várzea* (floodplains) of the Solimões River, upstream from the city of Manaus, at the beginning of the flood season. The archaeological sites are normally located on the bluffs that overlook these periodically flooded areas.

An examination of the dates for early ceramic production in northern South America (Hoopes 1994) shows that the data obtained by Roosevelt in the Lower Amazon are anything but aberrant (Roosevelt 1995). Indeed, the potential existence of very early ceramic complexes along the Amazon floodplains was already suggested by Lathrap (1974), but this hypothesis remained untested due to the lack of empirical data from the Brazilian Amazon. It is likely that as new areas are opened for research, additional data on early ceramics will appear. For instance, in the Lower Uaupés Basin, near the border of Brazil and Colombia in the northwest Amazon, non-decorated fibre-tempered ceramics dated to c. 3200 BP were identified at a site adjacent to an ancient meander channel (Neves 1998).

Lathrap's focus on the tropical forest alluvial floodplains (Fig. 11.2) as the major centre for cultural development in the Americas in the Early Holocene was presented in a number of papers with a continental perspective (Lathrap 1973b, 1973c, 1974) pointing, among other things, to the evidence of early trade networks in the tropical forest (Lathrap 1973a; Myers 1981) and to the presence of tropical forest elements in the iconography of early highland ceremonial complexes, such as Chavín de Huantar (Lathrap 1973b). In a discussion of the then earliest known ceramic complexes found in northern South America—such as Valdivia (Guayas Basin, coastal Ecuador); Puerto Hormiga (Lower Magdalena Basin, near the Caribbean coast of Colombia); the Alaka Phase (coastal Guyana)—Lathrap (1974) proposed that even earlier ceramic complexes should be found in the floodplains of the Central Amazon Basin or in Northern South America. His reasoning was straightforward: he argued that these ceramics were different enough from each other for one to suggest a diffusion from one complex to the other, an assertion confirmed by further research on this topic (Raymond 1995; Raymond *et al.* 1994). This was a direct critique of Meggers, Evans and Estrada's (1965) hypothesis of a transpacific migration from the Jomon potters of Japan to Ecuador that was supposedly responsible for the introduction of ceramics to South America. According to Lathrap, the earliest of these ceramic complexes should be sought in tropical forest areas such as the Amazon or parts of Colombia and not in a very improbable transpacific migration.

Recent work by Roosevelt and her associates confirms Lathrap's hypothesis, since they have found evidence of the earliest ceramics in the Americas in the Central/Lower Amazon Basin, not far from

Lathrap's hypothetical origin centre (Roosevelt 1995; Roosevelt *et al.* 1991). However, it remains to be assessed whether these ceramics diffused to other areas and generated the other known ceramic complexes. Recent hypotheses about the emergence of ceramics in the Americas tend to indicate multiple origins rather than a diffusion from a single centre (Barnett and Hoopes 1995). Moreover, recent work in the Guayas Basin in Ecuador (Lamb and Vargas 1995) also indicates that the economy of the early ceramic-making societies of this area may not have fitted the tropical forest pattern envisioned by Lathrap and his collaborators (Lathrap *et al.* 1977).

These changing perspectives in chronology show that it is no longer possible to focus on Amazonia as a peripheral area in the context of South American pre-colonial archaeology, although this remains a strong point of contention, as will be discussed below.

ENVIRONMENT-BASED EXPLANATIONS IN AMAZONIAN ARCHAEOLOGY

The first attempt to assess the developmental sequence of Tropical Forest Culture in the Amazon, as sketched in *The Handbook of South American Indians* was Meggers and Evans' (1957) archaeological survey of the mouth of the Amazon. This research marked the beginning of a strong influence on the whole of Brazilian archaeology which is still felt today (Meggers 1985, 1992a). This area was chosen because previous research had indicated the presence of massive earth mounds associated with exquisitely decorated polychrome ceramics on the eastern part of Marajó Island. Since these features resembled more of a Circum-Caribbean than a Tropical Forest Pattern, they seemed to be an anomaly within the picture envisioned by Steward for the lowlands. Meggers and Evans' cultural sequence for Marajó Island is composed of five phases defined on the basis of ceramic analysis. Their interpretation of the Marajoara Phase, associated with earth mounds and polychrome ceramics, fitted the expectations presented in the *Handbook*. The archaeological data were explained as a record of a process of cultural devolution, caused by environmental factors, of an emigrant population that originated somewhere in western South America, which had a chiefdom-like pattern of political organisation that decayed into a less complex Tropical Forest Pattern (Meggers and Evans 1957). Given their reliance on relative chronologies, Meggers and Evans believed that the process of decay of the mound-builders from Marajó was relatively fast, another potential indicator of the strength of the environmental limiting factors acting in the Amazon.

The evidence gathered at the mouth of the Amazon was also influential in the development of a general hypothesis of environmental factors, mostly concerning agricultural potential, as variables setting limits for social complexity in a world-wide context (Meggers 1954:821). The key problem in this case relates to the issue of settlement mobility, a point that is at the core of this and subsequent uses of ecological reasoning in Amazonian anthropology (Gross 1975; Lathrap 1968a; Meggers 1971). Such a perspective interprets the patterns of mobility of contemporary hinterland indigenous societies in Amazonia as an adaptive response to the scarcity of natural resources such as animal protein (Gross 1975; Lathrap 1968a) or soil fertility (Meggers 1971). Contemporary patterns of mobility among indigenous Amazonians, however, are better explained by factors which are not purely ecological. Already in the late 1950s, Carneiro's (1957) detailed study of agriculture among the Kuikuru Indians of the Upper Xingú Basin indicated that they could garden the same area continuously for up to ninety years. Thus, village mobility can be understood with models that incorporate variables such as kinship and political disputes at the village level (Neves 1995a). Also of paramount importance is the fact that contemporary patterns of village mobility are a response to the pressure exerted by the current pace of colonisation of the Amazon (Beckerman 1979; Roosevelt 1989).

Moreover, further work on Marajó Island has shown how the occupation span of the Marajoara Phase is much longer than that initially suggested by Meggers and Evans (1957). Thus Roosevelt (1991b) has

obtained dates placing the beginning of this phase in the fourth century AD and its end around the thirteenth century AD. An assessment of the productive activities of the Marajoara folk, however, remains an open question. Brochado (1980) has presented a model, not based on actual fieldwork, where Marajoara agriculture is seen as a large-scale undertaking of a chiefdom-like political formation based on the intensive cultivation of seed and root crops in natural ridged fields—old Pleistocene marine terraces—that naturally emulate the artificial landscape of raised fields found in other areas of the lowlands, such as the Llanos de Mojos in Bolivia (Denevan 1966; Erickson 1995), the Atlantic shore in French Guiana (Rostáin 1991) or the Barinas area in Venezuela (Spencer and Redmond 1992).

Brochado's model has not been tested, although Roosevelt's (1991b) fieldwork at Teso dos Bichos and other mounds in eastern Marajó has so far been the most detailed effort to recover palaeobotanical data in the archaeology of the Brazilian Amazon. This research was partially designed to recover evidence attesting to the intensive cultivation of maize by the Marajoara folk, since Roosevelt's (1980) previous work in the Parmana area of the Middle Orinoco had established a positive correlation between the growth in size of settlements of the Corozal Phase with the introduction of maize, evidence which was further corroborated by carbon isotope analysis of skeletal remains (van der Merwe *et al.* 1981).

As with Brochado (1980), Roosevelt (1987, 1991b, 1992) works from the premise that the Marajoara Phase is the archaeological correlate of a chiefdom. However, the preliminary report from the work at Teso dos Bichos (Roosevelt 1991b) did not bring conclusive evidence of intensive cultivation of maize, or even of maize being a major staple in Marajó during the span of the Marajoara Phase (see also Roosevelt 1992:76). If so, a model accounting for cultivation of root crops, instead of seed crops, to support dense population aggregates in pre-colonial Amazonia may be more plausible than Roosevelt's (1992:76) hypothesis that the widespread pattern of manioc cultivation currently found among native Amazonians is a 'return' to an ancient, formative-type pattern, due to the European contact. Heckenberger (1996:91), for instance, showed, with the use of ethnographic analogies of archaeological and ethnographic ceramics of the Upper Xingú Basin, that effective manioc farmers occupied, around the end of the first millennium AD, the large (almost 1 km in diameter), fortified circular villages surrounded by ditches found in the area. Moreover, at least in eastern Amazonia, maize tends to be cultivated by fairly mobile societies, normally under stress due to the encroachment on their lands of the advance of the western frontier (Balée 1994; Viveiros de Castro 1992), because maize needs a much shorter growing period than manioc.

If agricultural potential has been viewed as a limiting factor for cultural development in Amazonia (Meggers 1954), it was work in soil science (Smith 1980) that laid the ground for one of the most effective critiques of environmental determinism: so-called 'historical ecology' (Balée 1994, 1995). Smith's work focused on the characteristics and formation process of the *terra pretas de índios* (hereafter TPI), Indian black earth soils found in many areas of Amazonia. These are highly fertile dark—deep black to dark brown—soils which are often associated with archaeological sites (Figs. 11.3 and 11.4) and were previously characterised as natural features (Falesi 1974). These soils have the same physical characteristics as the poor Amazonian latossols, but their chemical properties are different: a more basic pH; higher and more stable humic content; higher nitrogen and phosphorous contents; and a higher amount of exchangeable cations (Pabst 1991).

Since Smith's (1980) work, further research in archaeology and soil science has been bringing evidence for an anthropogenic origin for TPIs. Such has been the conclusion of the work done by Eden and his associates in Araracuara, at the Caquetá River in the Colombian Amazon (Eden *et al.* 1984), and by Kern (1996) in the Caxiuanã area in the Lower Amazon. At Açutuba and other sites in the Lower Rio Negro, near Manaus, a positive correlation between TPIs and very large and dense archaeological sites with well-dated



Figure 11.3 View of a road-cut, exposing ceramic remains and layers of anthropogenic black earth in the Central Amazon. Such dark soils are usually associated with archaeological sites representing dense, long-term, sedentary occupations in the area.

occupation sequences that go from the beginning of the first millennium BC to the sixteenth century AD has also been found (Heckenberger *et al.* in press).

Although the positive correlation between archaeological sites and TPIs has been established, the mechanisms accounting for the formation of these soils are still debated. Smith (1980:556) proposes that the long-term human prehistoric occupation of given spots would promote the development of TPIs, through the accumulation of organic residues, mainly from low-heat domestic fires. At Araracuara, it has been proposed that colour variation among archaeological sites with TPIs is associated with different patterns of land use: brown soils resulted from formerly cultivated plots, whereas black soils are found in areas of former habitation units (Herrera *et al.* 1992:102). TPIs, however, not only result from residues produced during the ongoing occupation of a given place. At Araracuara, Herrera and her colleagues (1992:102) hypothesised that alluvial silt was also added to the soil in the process of TPI formation.

Research on the timing of TPI formation is still under way. Smith (1980:564) suggested initially that around ten years of continuous occupation would be necessary for the formation of one centimetre of TPI. At Açutuba, preliminary chronological evidence shows major modifications in soil colour associated with the advent of the polychrome ceramics of the so-called 'Guarita Phase', dated for the site from AD 970 to 1440 (Heckenberger *et al.* in press). Such preliminary data strongly suggest that archaeological sites with TPI resulted from decades, if not centuries, of continuous occupation, further evidence that the pattern of

settlement movement among pre-colonial Amazonian societies was less intense than that which is verified today.

The growing evidence for anthropogenic origins of TPIs has an important implication for ecologically oriented archaeology in the Amazon. It shows that the Amazonian landscape, as we know it today, is not just a product of nature alone, but also a cultural artifact resulting from millennia of human management, a point already mentioned by other authors for the whole American continent (Denevan 1992a; Stahl 1996). This follows the principles of 'historical ecology' (Balée 1994, 1995) that work on the premise that historical, not evolutionary, events are responsible for the principal changes in relationships between human societies and their immediate environments (Balée 1995:97).

As with the evidence for landscape changes inferred from work with TPIs, ethnobotanical research has shown that the continuing conscious and unconscious environmental management by contemporary Amazonian Indians increases, rather than reduces, ecological diversity. Such is the case among the Ka'apor of eastern Amazonia, according to Balée (1994:136). Balée's (1994:116) definition of management is as follows: 'the human manipulation of inorganic and organic components of the environment that brings about a net environmental diversity greater than that of so-called pristine conditions, with no human presence'. Balée and Moore (1994) showed that plant management is a very ancient activity among the Ka'apor and other Tupí-Guaraní groups through the comparison of plant names in five different Tupí-Guaraní languages spoken by groups currently settled in different ecological areas. Among these languages, the names for more intensively managed plants (domesticates and some semi-domesticates) have higher rates of similarity than the names for non-domesticates (Balée and Moore 1994:371), an indication that the names for intensively managed plants in these languages are cognate words derived from a language spoken around two thousand years ago (Balée 1994:138).

In the case of Ka'apor, plant management refers to swidden agriculture of manioc. In this case, landscape changes are unforeseen consequences of productive activities (Balée 1994:139). However, cases for deliberate landscape transformation by Amazonian Indians have also been presented. Among the Kayapó, Posey (1986) verified the deliberate formation of plant islands with natural resources with the goal of providing resource banks. The Kayapó, however, are not traditional inhabitants of the rainforest, having settled there in the last two hundred years or so (Verswijver 1992). In this sense, it is interesting to consider that their management practices may have originally developed in their ancient savannah homeland in central Brazil. If that were the case, there would be grounds to support the hypothesis that Brazilian savannah landscape has also been intensively transformed due to human management (Flowers 1994).

Evidence of management of plant resources was gathered as well among the Nukak, a tropical rainforest foraging society of the Colombian Amazon who, through management of plant resources (Fig. 11.5), such as palm trees, enhance the ecological diversity of their environments (Politis 1996a, 1996b). The Nukak data are also important because they indicate the possibility of a livelihood for a foraging society in a tropical rainforest setting without reliance on plant cultivation, contrary to what was proposed by Bailey and Headland (Headland and Bailey 1991). The early pre-ceramic dates obtained by Roosevelt in Pedra Pintada (Roosevelt *et al.* 1996) point in the same direction, since the available palaeoecological reconstructions show that the Central/Lower Amazon was already covered by a dense rainforest at the end of the Pleistocene (Adams and Faure 1997). At Pedra Pintada, data on productive activities show a record of a diversified economy based on the gathering of different plant species as well as on fishing and hunting.

One of the implications of these studies is that in Amazonia nature does not necessarily provide a ceiling against which the potential for population growth or the emergence of social complexity should be evaluated, since nature itself is partially a product of human action and not a neutral external variable. This



Figure 11.4 Surface view of Figure 11.3, located in a papaya plantation, with ceramic sherds on the surface. Areas with anthropogenic black earth are sought by present-day Amazonian farmers because of their chemical characteristics.

evidence alone should be suggestive enough to cast doubt on some of the environmental determinism that has characterised Amazonian archaeology under the influence of Meggers.

This evidence also supports the criticism of ecological determinism put forward by Lathrap (1968a, 1973a, 1974, 1977), who argued that the alluvial floodplains of the tropical forest lowlands were major centres for early cultural developments, such as plant domestication and ceramic production (Lathrap 1970a: 104; 1977:716). From this perspective, the tropical forest, or at least parts of it, exerted a stimulus for the establishment of large, stable, sedentary societies (Lathrap 1968a, 1968b, 1970a, 1973c, 1974, 1977).

Lathrap's general hypothesis derived from his discussion of the different subsistence potential of the floodplains and the hinterlands in the Amazon (Lathrap 1968a, 1968b), an approach subsequently adopted by other archaeologists working in the area (Meggers 1971; Roosevelt 1991a). Drawing on Lowie (1948) and Steward (1948), Lathrap called attention to the importance of riverine adaptations in the tropical forest, mostly in terms of the year-round availability of animal protein—fish, mammals, reptiles and fowl—but also in terms of fertile agricultural soils (Lathrap 1968a, 1968b, 1970a). Such stable concentration of resources favoured the demographic growth of sedentary populations leading eventually to competition over resources with two possible outcomes: the colonisation of other floodplain areas or the occupation of the hinterland areas which were poor in resources. Because of its focus on the Central Amazon as a steady driving centre of colonising populations into the other areas of the tropical forest and adjacent areas, Lathrap's diffusionistic model has been called 'cardiac' (Carneiro 1971).

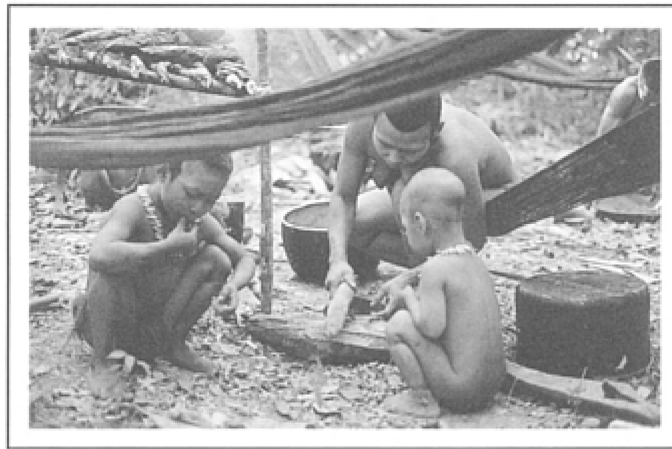


Figure 11.5 A Nukak woman cracking nuts to feed her children in a summer residential camp in the Colombian Amazon (photograph courtesy of Gustavo Politis).

The premises of this model were applied in Lathrap's (1977) proposal that all systems of food production in the New World derived from an ancient system of cultivation of bitter manioc centred in the alluvial floodplains of the Amazon and northern South America, a system derived in turn from a Late Pleistocene transatlantic migration of African people responsible for the introduction of the bottle gourd *(Lagenaria siceraria)* to South America. In this model, population growth in these sedentary communities, encouraged by the continuous source of animal protein, would eventually lead to the split of daughter communities that would slowly colonise adjacent floodplains in neotropical America (Lathrap 1977:738). Along with this expansion, house-garden systems would eventually grow more complex and incorporate a number of plant species of economic importance—raw materials, poisons, food, medicines, and hallucinogens. Following the lead of Sauer, Lathrap (1977:739) suggested that manioc would have been incorporated into this expanding house-garden system as it reached northwestern South America. There, around 5000 BP, an intensification of manioc use would have led to its actual domestication and cultivation in field-gardens. Although other plants were already managed or cultivated in housegarden contexts before, Lathrap (1977: 740) suggested that it was bitter manioc cultivation that marked the beginning of a 'neolithic revolution' in the Americas.

Although Lathrap's neolithic model presented some implausible scenarios, recent evidence brings support to some of these ideas. Thus there is growing evidence of a Late Pleistocene human occupation in different parts of South America (Dillehay *et al.* 1992; Prous 1992, 1995), including the Amazon Basin (Roosevelt *et al.* 1996). In the same way, the above-mentioned management studies show house-garden type management activities among, for instance, the Kayapó (Flowers 1994; Posey 1986) and the Ka'por Indians (Balée 1994). Finally, evidence gathered in the Casma Valley (Ugent *et al.* 1986), in the central Peruvian shore—far away, therefore, from any plausible centre of domestication of manioc—of remains of manioc dated at *c.* 4500 BP show that the domestication of this plant was indeed a fairly ancient process. One sees many parallels between Lathrap's intuitive apprehension of the house-garden concept and David Rindos' (1984) Darwinian-based model for the origins of agriculture.

Lathrap's model is based, however, on the assumed premise of a drastic difference between hinterland and floodplain ecosystems that awaits further archaeological testing. Denevan's (1996) bluff model points

to an alternative to this dichotomy when it contemplates patterns of resource use in both riverine and floodplain environments. Preliminary data obtained in the area of confluence of the Negro and Solimões Rivers (Neves and Bartone 1998) seem to support this model, but further evidence is still needed in this case.

From the 1970s onwards, another form of deterministic reasoning was introduced to Amazonian archaeology. This time, the models attempted to correlate patterns in the archaeological record with palaeoenvironmental variables. Again, the strongest proponents of these ideas were Meggers and her Brazilian disciples (Meggers 1977, 1979, 1982, 1987, 1990, 1991, 1992b, 1993–5, 1995; Meggers and Danon 1988; Meggers *et al.* 1988; Miller 1992; Simões 1977). Meggers herself has not done systematic fieldwork in the Amazon since her two-month survey of the Rio Napo, Ecuador, in 1956 (Evans and Meggers 1968), but her influence was instrumental in setting up an archaeological research programme—the PRONAPA, Programa Nacional de Pesquisas Arqueológicas—with the collaboration of several Brazilian archaeologists, to test these hypotheses (Simões 1977; see also Funari, this volume), although no detailed reports on the results of this project have yet been published.

Meggers' (1977, 1979) initial attempt to use palaeoenvironemtal data was based on the premises of the 'refuge theory' (Whitmore and Prance 1987), developed to explain patterns of species distribution in Amazonia as consequences of arid episodes in the Pleistocene. Since the premises of this theory have been criticised (Colinvaux 1987; Whitten 1979), Meggers has, in her more recent publications, distanced herself from explanations based on the premises of the refuge theory (Meggers 1992b, 1993–5, 1995; Meggers and Danon 1988). She has, however, retained her focus on Holocene environmental change as a potential limiting factor in Amazonia. Thus a gap in the archaeological sequence of the Marajó Island was correlated by Meggers and Danon (1988) to an arid interval, inferred from pollen data, lasting from around 2800 to 2000 BP. Such an interpretation was further extended to explain gaps around the same interval in archaeological sequences from such different areas as the Llanos de Mojos (Bolivian Amazon), Lago de Silves/Lower Uatumã (Central Amazon) and Lower Xingú (Lower Amazon) (Meggers 1995:31). These gaps were interpreted by Meggers as responses to arid intervals generated by El Niño-Southern Oscillation (ENSO) phenomena happening along the west coast of South America. A similar reasoning was employed by Perota and Botelho (1992) to interpret a number of now partially submerged shell mounds found in the Lower Xingú area. Since these interpretations are based on unpublished, or only partially published, primary data generated from PRONAPA research, one has to wait for the full publication of these reports in order to evaluate them independently. An alternative possibility is to verify whether similar responses can be detected in the archaeological record of areas in South America that supposedly also underwent dry episodes as a consequence of ancient ENSO phenomena (Meggers 1995:32).

The issue of understanding the role of environmental variables in the shaping of social and cultural processes is still an unsettled matter. It seems however, that models based on a pure cost/ benefit, Western-oriented rationale will not work well in such an undertaking. Descola's (1986, 1994) and Reichel-Dolmatoff's (1971, 1976) ethnographies show that, among some indigenous groups of the Amazon, a 'homoeostatic' ideology regulating patterns of use of natural resources prevails. Should such ideology be instrumental in explaining the seemingly long intervals of stasis one verifies in the archaeological record of Amazonia? Or can these intervals be explained in the orthodox, deterministic fashion? Independently of the answers to these questions, management studies show that it is impossible to continue focusing on nature as an independent external variable in Amazonian anthropology.

LINGUISTIC MODELS IN AMAZONIAN ARCHAEOLOGY: ASSESSING ETHNIC IDENTITY

Lathrap and some of his students (Brochado 1984; Lathrap 1970a; Lathrap and Oliver 1987; Noelli 1996; Oliver 1989) have been the most forceful proponents of linguistic-based models in Amazonian and lowland South American archaeology in the last three decades. Basing it on the premises of the 'cardiac model', Lathrap presented a general hypothesis for the distribution of native indigenous languages (1970a:68–83), proposing that the two most widespread linguistic stocks of the lowlands, the Arawakan and the Tupian, had a common origin in the central Amazon around 5000 BP. This hypothesis was reached through the correlation of the protolanguages of these stocks with the distribution of ceramic complexes in the lowlands. It countered prevailing linguistic models that recognised a western Amazonian origin for these stocks (Noble 1965). Indeed, Lathrap's model has been consistently criticised by linguists (Migliazza 1982; Urban 1992, 1996) and archaeologists working in the lowlands. Evans (1971), for instance, pointed to the conceptual problems of correlating language and material culture, a remark subsequently repeated by him as well as by other Amazonian archaeologists (Meggers and Evans 1973; Roosevelt 1992). Meggers and Evans modified their perspective somewhat, allowing some room for the covariance of language and material culture in their subsequent work (Meggers and Evans 1980).

Lathrap's model of linguistic dispersal generated two wide-ranging doctoral dissertations that attempted to test it (Brochado 1984; Oliver 1989). Brochado (1984) offered a general model to explain the diffusion of pottery over the Amazon and eastern South America. Drawing on Lathrap's (1970a) model for the diffusion of populations speaking languages of the Tupí' stock, Brochado amassed empirical data to support the hypothesis of an ancient Central Amazonian origin for the proto-Guaraní and proto-Tupinambá languages of the Tupí-Guaraní linguistic family (Rodrigues 1986). 'Tupinambá' is used here to designate the different populations that occupied most of the Brazilian Atlantic coast in the sixteenth century. Brochado suggested that the splitting of these languages happened at an earlier date (*c.* 2500 BP) out of a proto-language in the Central Amazon. Archaeologically, the remains of the speakers of such a proto-language would be correlated with the ceramics of the Guarita Sub-tradition of the Amazonian Polychrome Tradition (Brochado 1984:321). From this ancient homeland, population pressure would have driven proto-Guaraní speakers southwest, in a route along the floodplains of the Madeira River, whereas protoTupinambá speakers would have been pushed down the Amazon to the Brazilian coast.

Oliver's doctoral dissertation (1989) is like a mirror image of Brochado's. Despite the initial suggestions of Brochado (1984), Brochado and Lathrap (1982), Lathrap (1970a), and Rouse (1985, 1986), all of them based on reviews of the literature up to the late 1980s, there had been no attempts to push the case for the existence of early ceramics that could be correlated with proto-Arawakan occupations in the Central Amazon, particularly in the Lower Rio Negro. Oliver's doctoral dissertation accomplished this task with the development of a general model for the expansion of Arawakan-speaking populations and of polychrome ceramics from the central Amazon into northern South America.

Oliver suggested that by 6000 BP proto-Arawakan/proto-Tupian-speaking populations occupied the Central Amazon. From these early populations, a proto-Arawakan branch expanded northwards into the upper Rio Negro. This expansion involved the spread of what Oliver (1989: 487) has tentatively called the Ancient' Amazonian Polychrome Tradition. An archaeological correlate of such expansion can be found in the polychrome ceramics dated from *c.* 5700 BP at Agüerito site, located at the confluence of the Apure and the Orinoco Rivers in central Venezuela (Zucchi *et al.* 1984). Lathrap and Oliver (1987) suggest that these are the most ancient polychrome ceramics known in the Americas (Oliver 1989:487).

Oliver's reasoning is a development of Brochado and Lathrap's (1982) general hypothesis that placed the emergence of polychrome decoration in an ancient development from incised decoration from the Central

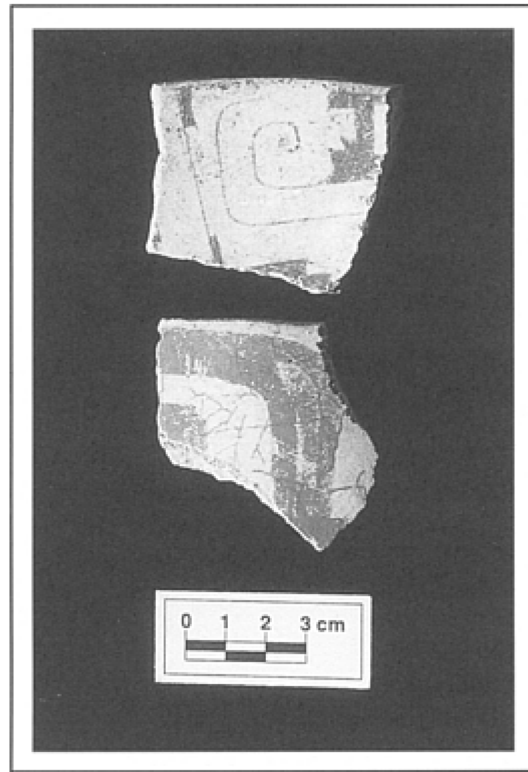


Figure 11.6 Sherds of polychrome ceramics from the Guarita Sub-tradition of the Central Amazon. Preliminary results from this area place the onset of the Tradition at a much later period than previously suggested, around the end of the first millennium AD.

Amazon, as it is expressed in their discussion of the emergence of Guarita ceramics, the earliest polychrome complex in the area. From this perspective, Guarita is a local Central Amazonian development of earlier Barrancoid (Incised Rim Tradition) ceramics (Brochado and Lathrap 1982:86; Lathrap 1970b). Brochado and Lathrap's (1982) hypothesis is based on a reinterpretation of the data obtained by Hilbert (1968) in the Lower Rio Negro. Initially they traced these developments to *c.* 2500 BP (see also Brochado 1984:316–17). In further works, Lathrap pushed the initial development of the Amazonian Polychrome Tradition to an even earlier date, *c.* 6000 BP (Lathrap and Oliver 1987). However, the archaeological record of the Rio Negro has failed so far to sustain these claims: preliminary work has not yet provided evidence of ceramics belonging to this ancient polychrome tradition either in the Lower or in the Upper Rio Negro Basins (Heckenberger *et al.* in press; Neves 1997; Zucchi 1991, 1993). In the Upper Rio Negro, polychrome and plastic decoration are absent in the earliest known ceramic complexes in the area, dated to 3200 and 2500 BP (Neves 1997, 1998). In the Lower Rio Negro, a well-dated sequence shows that Guarita ceramics (Fig. 11.6) appear only towards the end of the first millennium AD, much later than suggested by Lathrap, Oliver and Brochado (Heckenberger *et al.* in press)

Finally, there is an additional problem brought by the identification of the ancient ceramics of the Lower Amazon (Taperinha and Pedra Pintada). These ceramics are mostly sand-tempered (Roosevelt 1995),

contrary therefore to the hypothesis or Brochado and hrap (1982), who suggested that these early complex should be *cauixí*-tempered.

Preliminary as they still are, the data presented above point to a late establishment of the Amazonian Polychrome Tradition in the Central Amazon. In terms of the linguistic-based models of Lathrap, Brochado and Oliver, this opens up two general problems. First, it suggests that other ceramic correlates for the northern expansion of Arawakan-speaking populations upstream of the Rio Negro should be sought. Second, it calls into question the general hypotheses of Lathrap (1970a), Brochado (1984), Rouse (1985), and Oliver (1989) that give a Central Amazonian origin for both the Arawakan and the Tupí stocks. In the case of Brochado's hypothesis, it also needs to be explained why the earliest available dates for polychrome ceramics outside Amazonia were gathered, in Brazil, in the southern, rather than in the northeastern, part of the country.

A correlation between archaeological and linguistic patterns was also attempted by Meggers in the 1970s and early 1980s, in a number of innovative contributions where she aimed to explain the distribution of native Amazonian languages on the basis of the above-mentioned theory of forest refuges (Meggers 1977, 1979, 1982) or on supposed past episodes of climatic change (Meggers 1987). Work done by linguists (Migliazza 1982) supported the hypotheses presented in these works, but Meggers' and Evans' (Evans 1971) reluctance to correlate language with material culture makes it difficult for their proponents to test this hypothesis.

The issue of correlating archaeological and linguistic patterns in the lowlands of South America is a necessary but problematic task. It is necessary because linguistic identification has been traditionally employed as an index for ethnic identification in regional anthropology. On the one hand, if one accepts that pre-colonial archaeology in Brazil is a historical undertaking with a focus on indigenous history (Neves 1995b), it is almost impossible to escape the employment of linguistic-based labels. On the other hand, if the establishment of these correlations is less problematic in insular contexts such as the Caribbean and Polynesia (Kirch and Green 1987; Rouse 1986, 1992), it emerges again, in other parts of the world, as one of the basic methodological problems of archaeology (Blench and Spriggs 1997) as it distances itself more and more from the dogma of processualism.

An examination of the ethnography and ethnohistory of lowland South America is ambiguous in this matter. There are plenty of data indicating the existence of multi-ethnic regional systems in different areas of the Amazon and northern South America. Ethnographic descriptions come from areas currently located mainly at the periphery of the colonising frontiers in Brazil and its neighbouring countries, such as the Upper Rio Negro Basin (Jackson 1983), the Upper Xingú Basin (Galvão 1960; Heckenberger 1996), the Guyana highlands (Butt-Colson 1973; Rivière 1984; Thomas 1972), the Ucayali Basin (Erikson 1992; Kästner 1992) and the Orinoco Basin (Arvelo-Jiménez and Biord 1994). The historical literature refers to cases where these systems were completely disassembled during the colonial period in areas where today few, if any, aboriginal societies remain: the Lesser Antilles and the mainland of South America (Dreyfuss 1993; Farage 1991; Whitehead 1990, 1993); the Solimões River (Porro 1993, 1994, 1996; Sweet 1974); and the Orinoco-drained llanos of Colombia and Venezuela (Arvelo-Jiménez and Biord-Castillo 1994; Biord 1985; Morey and Morey 1975), among others.

These systems have a number of characteristics: they are multi-ethnic and multilinguistic; their boundaries are more or less fuzzy; intra-system integration occurs along different lines, such as trade, marriage and warfare; prescribed exogamy, female raiding or informal exogamy promote the circulation of people. These systems vary over time in terms of the ethnic composition and the patterns of integration within different groups, within the given structural background provided by marriage, trade and warfare.

The archaeological visibility of regional systems in the Amazon has not been assessed yet, although some preliminary studies have been undertaken to assess their antiquity and development (Heckenberger 1996; Neves 1998). If one accepts, however, a positive correlation between, say, ceramics and languages the above characterisation of regional systems presents many methodological problems, given their multi-ethnic and multilinguistic composition. It is still difficult at the moment to present a general formula on how to identify such systems archaeologically, if indeed such a formula exists. The potential archaeological visibility of these different systems is expected to vary, since it will depend in part on the kind of goods exchanged and on the intensity and range of this exchange. In the Upper Xingú Basin one finds local groups speaking different languages, but who are regionally integrated through exchange of many goods, including ceramics (Basso 1973). In this case ceramics are produced by one group only, the Arawakan-speaking Waurá. Villages have the same general circular layout, with longhouses located at their periphery. Without ethnographic background, archaeologists could interpret the record of the Upper Xingú—in the way these societies are organised today—as the product of a single linguistic/social formation.

Nonetheless, the spread of a single ceramic style in this area provides a material indicator for the regional system there, even if in this case on the basis of ceramic remains there would be no grounds to identify the different ethnic groups currently incorporated into this system. Heckenberger (1996) has attested to the pre-colonial antiquity of this system in the Upper Xingú, providing a historical reconstruction of its development, including the process of aggregation of different ethnic groups over time.

The Upper Rio Negro (Fig. 11.7) is another well-known case of a multilinguistic regional system in the Amazon (Jackson 1983) with actual evidence of language substitution among indigenous groups, such as the case of the Tariana, who were former Arawakan-speakers but are now Tukanoan-speakers. Neves (1998) demonstrates the pre-colonial antiquity of this system, with the help of archaeology and indigenous oral traditions. In contrast to the contemporary Upper Xingú, one finds in the Upper Rio Negro a basic difference between the decorative patterns of the ceramics produced by the Arawakan-speaking Baniwa, which show bichrome painting of red on white or red on buff, and the ceramics produced by the different Tukanoan-speaking groups in the area, which show resistive decoration over a burnished surface. If one considers, however, that there are more than ten different Tukanoan languages being spoken in the area, ceramics do not work as precise indicators of ethnic boundaries in this case.

These examples show that the issue of correlating language and ceramics in Amazonia will have to be dealt with through regionalfocused research with a direct historical approach in areas where there is historical continuity between current indigenous populations and their ancestors. At this point, it seems difficult to accept general models based on such correlations, although these models provide an overall spatial and temporal framework against which fresh field data can be tested.

THE ASSESSMENT OF THE IMPACT OF THE EUROPEAN CONTACT ON THE AMAZON

The issue of the assessment of the impact of the European Conquest over pre-colonial patterns of political organisation has been brought to the forefront of Amazonian archaeology by Roosevelt (1989). It is true that Lathrap and his students, most notably Myers (1973, 1981), were already aware of the transformations wrought by the Conquest, but these scholars were more familiar with data from the upper Amazon, which represents a relatively small portion of the Basin. Roosevelt, in her turn, had access to areas in the Lower Amazon that were virtually closed for several decades to archaeological research not aligned to Meggers' and Evans' canons (Roosevelt 1991b; Roosevelt *et al.* 1996; see also Funari, this volume).

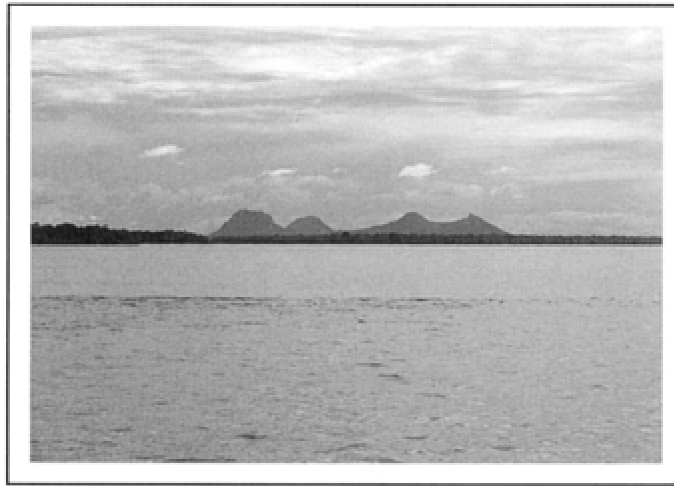


Figure 11.7 Granite outcrop in the Upper Rio Negro, near the borders of Brazil, Colombia and Venezuela. In this area, the landscape and ecological features are markedly different from those found along the main floodplain of the Amazon.

Roosevelt's main hypothesis is based on a fact well known to anyone familiar with Amazonian anthropology: a brief examination of the distribution of Amerindian societies in the Amazon shows that most of the floodplain of the Lower and Middle Amazon is today no longer occupied by these societies. The only exception in Brazil is the Tikuna Indians, but these are relative newcomers in their current territory, which covers Brazil, Colombia and Peru (Nimuendajú 1982; Porro 1996). Thus current native Amazonian patterns of political and economic organisation cannot be used to explain the full range of the patterns prevailing in the area before the sixteenth century AD (Roosevelt 1989). In other words, this is a warning against the indiscriminate use of ethnographic analogies in the interpretation of the archaeological record.

Roosevelt's (1989) criticism was addressed at the way Meggers (1971) employed ethnographic analogies in order to exemplify the supposed power of the environmental limiting factors in Amazonia. Meggers' use of analogy has changed over time (Meggers and Evans 1979). In its current form, it is based on the methodological premise that an archaeological phase is the actual correlate of a prehistoric local community (Meggers 1990; Meggers and Evans 1980). This is a significant departure from Meggers and Evans' (1957) early work when there was an explicit refusal to correlate a phase with any kind of social formation. Such a change in perspective allows the establishment of ethnographic analogies in a way not previously done by Meggers (1990, 1991, 1992b, 1993–5, 1995).

The field procedures employed in the establishment of these analogies are based on the excavation, in artificial levels, of test pits. The ceramics obtained are classified with seriations to define phases. The ceramic phases defined for each level in a test pit are compared with the ceramics from the same levels in other test pits at the same site. If these levels contain ceramics belonging to different phases, it is then assumed that they represent different occupations. It is in this way that Meggers explains the formation of the large archaeological sites found along the floodplain of the Amazon (Heckenberger *et al.* in press; Hilbert 1968; Myers 1973; Neves and Bartone 1998). Following this reasoning, the size of these large sites does not correlate with the size of the pre-colonial settlements, being consistently larger because of several re-occupations of the same spots by populations settled in small villages (Meggers 1995:27).

Meggers' reasoning is problematic because it ignores the possibility of internal ceramic variation in the same occupation levels, as well as the fact that a number of natural and anthropic factors are actively involved in mixing-up archaeological occupation levels in the tropical forest (DeBoer and Lathrap 1979; DeBoer *et al.* 1996). Moreover, even if one accepts the premises of this approach, it is difficult to evaluate these data independently, since no excavation profiles, nor the actual artifactual composition of each level are given. The evidence is often presented in an incomplete fashion through which only some 'exemplar' cases are put forward, leaving out the large amount of data generated, but never fully published, by the PRONAPA (Simões 1977) in the last twenty years (Meggers *et al.* 1988; Miller 1992).

Meggers' new use of the concept of phase has also enabled her to present models for formal intra-regional migration routes and village splits, in cases when data from more than one site in a given area are available. Again, the goal here is to show the generally small size and short occupation span of pre-colonial Amazonian settlements. The procedure in this case is as follows. Based on the seriations, one or two sites are assumed to be the oldest in a group of sites identified and excavated in a given area. Former village movements from these older sites are then reconstructed, but since no, or few, absolute dates are provided, there is no certainty about the duration of the whole process or the length of each occupation (Meggers 1995:28). These inferred village movements are compared with data obtained from contemporary indigenous groups, such as the Kayapó, Akawaio or the Jivaro (Meggers 1993–5, 1995). Thus data on the Akawaio, a group settled in the hinterland watershed of the Guiana Plateau, are employed to explain the archaeological record of the Lower Tocantins, a large tributary of the Amazon with, to say the least, a potentially higher availability of animal protein, represented by aquatic fauna, than the Guiana Plateau. Meggers also consistently employs data on Kayapó village movement generated by Verswijver (1978). Later publications by this author show, however, that the Kayapó can hardly be recognised as a typical traditional Amazonian indigenous population (Verswijver 1992:337). They are, in fact, a long-time savannah-adapted population that has only entered southeastern Amazonia in the last 150 years or so (Flowers 1994). Central Brazilian savannah groups, such as the Kayapó, are renowned for their great mobility, including long trekking expeditions, a fact that may also be associated with the pattern of splitting of villages as has been ethnographically verified. Moreover, the strong pressure of the expansion of the Brazilian national society into their lands can partially account for the processes of village splitting observed among the Kayapó. As usual, Meggers explains these examples of village mobility with an ecological argument, such as the low environmental carrying capacity. These analogies are, however, not pertinent because they are taken from areas with very particular ecological characteristics, such as the nutrient-poor Upper Rio Negro Basin (Meggers 1995:33).

This discussion shows that Roosevelt's (1989) criticism is warranted, but at this point there is no available archaeological evidence to falsify Meggers' hypothesis of the explanation of the formation of the large sites of the Amazonian floodplain. The few available narratives of sixteenth- and seventeenth-century chroniclers (Porro 1996) have been used by Roosevelt (1987, 1989, 1991a) and others (Denevan 1992a; Guapindaia 1993; Porro 1996; Sweet 1974) to point to the existence of large and densely populated settlements in these areas. What is lacking now is archaeological data on settlement size, density and duration in order to assess these narratives independently. In the Lower Rio Negro, not far from the Amazon floodplain, preliminary data point to a fairly dense, stable and long-term occupation of the Açutuba site (Fig. 11.8), characterised by deep layers of anthropogenic black earth, high density of ceramic remains (for instance, roughly 8,000 sherds in a single 100×150×120 cm test pit), a conservatively estimated area of 90 ha and an occupation sequence dated from the beginning of the first millennium BC to the sixteenth century AD (Heckenberger *et al.* in press). In the same research area—the area of confluence of the Negro and Solimões (Amazon) Rivers—at least two other sites with the same dimensions have been identified, but



Figure 11.8 Test pit at the Açutuba site, Lower Rio Negro, revealing an intact ceramic context beneath the plough zone. Excavations on this site are providing data for the establishment of a firmer chronological sequence for the Central Amazon.

these data are conservative since regional survey is still under way (Neves and Bartone 1998). These results are still preliminary but further work in this area will bring the evidence needed to assess both Meggers' hypothesis and hypotheses based on interpretations of the narratives of the early chroniclers.

The assessment of these hypotheses, in its turn, will help the understanding of another open theoretical question of Amazonian archaeology: the assessment of the political character of late pre-colonial societies in the area. Since the mid-1980s, Roosevelt (1987, 1989, 1991b, 1992) has made strong suggestions that some of these societies were politically organised into a chiefdomlike pattern. Earlier claims in this sense were already made by other scholars, such as Myers (1973), but again Roosevelt had the opportunity of first-hand data from areas that were virtually inaccessible to research for many years, mostly in the mouth of the Amazon.

In the same way as Lathrap and Meggers, Roosevelt (1991a, 1993:265) accepts the premise that floodplains were major settings for social complexity in pre-colonial Amazonia. In the case of the mound-building societies of Marajó Island, Roosevelt suggested, using historical and archaeological data from her excavations of the Teso dos Bichos mound, that this and other Amazonian chiefdoms were characterised by the following features: location along floodplains; political centralisation of large territories, sometimes of tens of thousands of square metres; expansionist warfare; hierarchical social organisation; tribute payment; intensive agriculture and exploitation of aquatic fauna; sophisticated crafts, exemplified by polychrome and

incised punctate ceramics; increased human-based iconography in the decoration of vessels (see Schaan 1997 for another view on this issue); extensive trade; funerary urns, idols and death cults; large population aggregates along the floodplains, with sites being occupied by several thousand people; and earthworks such as mound-building, raised fields, causeways, aiming at water control, agriculture, habitation, transport and defence (Roosevelt 1992:71).

The preliminary data obtained by Roosevelt at Teso dos Bichos (1991b) seem to support her model, but since that model has not been fully published yet, and given the small size of the samples, one has to wait for further results in order to assess it. This is the case with the mortuary remains. The available data indicate interesting features, such as fronto-occipital deformation in some male crania (a possible status index); variation in bone chemistry (an indicator of differential access to resources); evidence of few pathologies (an indicator of good health status); and of greater average size than current Amazonian Indians (1991b:58). However, Roosevelt herself recognises that the relatively small size of the Marajoara sample and lack of detailed documentation allow only a few inconclusive observations (1991b:58). In this sense, although potentially informative, the skeletal data as they are available now do not provide a basis for the assessment of institutionalised inequality in Marajó society (Roosevelt 1991b:95–6). Therefore, there is not, at present, firm evidence of differences in access to resources at Marajó Island that could be gleaned from the osteological data.

The same can be said about settlement and community patterns. Again, although there is evidence of inter-site variability in Marajó Island—a potential indicator of hierarchy or economic specialisation—the data on this issue are not yet fully available (Roosevelt 1991b:36–7). At an occupation level at Teso dos Bichos, more than twenty longhouses, oriented east-west around an open area, were identified based on the extent of the floors and the number of contemporary hearths (Roosevelt 1991b:37, 333–7). Such hearths relate to assemblages of semi-tubular structures of fired clay that usually occur in horizontal groups in an east-west direction, but interestingly without chunks of charcoal associated with them (Roosevelt 1991b:288–9). These features have been interpreted as stoves, on the basis of comparison with ethnographic data from Indonesia and modern Marajó tenants (Roosevelt 1991b:290). The existence of longhouses was inferred through ethnographic analogy with contemporary Amazonian Indian groups, such as the Tukanoans of the northwest Amazon. However, in Roosevelt's own words: 'further excavation will be required to determine the shape, size, and orientation of the dwellings' (Roosevelt 1991b:334–5).

Roosevelt (1991b:289, 341) constructed, with the aid of ethnographic analogies, population estimates for this hypothesised longhouse village. With an average figure of fifty people to each longhouse renders a figure of 1,000 for a given occupation period, that is, fifty inhabitants in twenty longhouses (Roosevelt 1991b:342). These figures are plausible: Prous (1992:481) arrived at a population estimate of 2,000 inhabitants for the Camutins mound group, also located on Marajó Island, based on a re-analysis of the primary data provided by Meggers and Evans (1957). However, large population aggregates do not necessarily constitute a precondition for social hierarchies. Documented and estimated population figures for villages in, for instance, central and eastern Brazil also yield figures of one thousand or more inhabitants. The well-documented sixteenth-century Tupinambá of the eastern Brazilian shore lived in villages with an average of four to eight longhouses with total population figures from five hundred to two or three thousand people per village (Fausto 1992:384), but they are not presumed to have had a chiefdom-like pattern of political organisation.

It is likely that in Marajó the study of a wider sample of sites will allow the establishment of site hierarchies and better chronological control. Nowhere in Amazonia are such field procedures as feasible as they are here, given the high visibility of the archaeological sites and associated features. Such procedures are probably the only means of independently assessing Meggers and Evans' (1957) original model on the

basis of archaeological data. Prous (1992), for instance, presented an interesting model for the local expansion of the mound-building societies of East Marajó that contemplates a lengthy process lasting many centuries with a general eastward direction from Lake Ararí, but it has not yet been tested.

The assessment of the political status of Marajó societies relies also on the understanding of the architectural activity of mound-building, since it is partially due to the monumental characteristics of the mounds that the remains of the Marajoara Phase have been considered as correlates of a chiefdom. Given the span of the Marajoara Phase—around 900 years, from AD 400 to AD 1300—it is crucial to establish whether the mounds were actually built in short-term episodes or whether they resulted from the accumulation of different deposits through time because of the continuous reoccupation of the same spots. This is also the case with the earth mounds in the Sangay area in the Ecuadorian Montana (Porras 1987).

Roosevelt (1991b:333) shows that during the Pacoval Subphase occupations, mound-building was undertaken to provide retaining walls or supporting platforms. It is not clear, therefore, whether they were monumental structures built at the cost of great labour mobilisation over relatively short time intervals. Rather, given the long time span of the Pacoval Sub-phase, it is plausible to suggest that mound-building was a regular architectural management activity employed to prevent the mound from collapsing (Roosevelt 1991b:246).

Mound-building alone, then, need not be a correlate of a kind of hierarchy or political centralisation. Along the Atlantic shore of the Pará State, not far from Marajó Island, and in many areas of southern Brazil too, hundreds of shell mounds have been identified and excavated since the last century (Prous 1992:199–265). Some of these mounds, such as the now destroyed Garopaba, located in southern Santa Catarina State, had estimated basal dimensions of 400× 100 m and an estimated height of 30 m (Prous 1992:207). Whether built with an intentional architectural monumental perspective or not, a subject still debated in Brazilian archaeology, no one has considered these shell mounds as the result of chiefdom-like societies. The mere presence of monumental structures, and the inference that massive labour was involved in their construction, does not tell us much about the social and political structure of past social formations. It is rather the elucidation of the forms of labour mobilisation involved in their construction that can shed light on these structures (Kristiansen 1991:22).

The archaeological data currently available for eastern Marajó do not necessarily support the hypothesis that the mound-building societies occupying this area were structured along state or chiefdom lines. At this point, it is maybe more sensible to follow the hypothesis that moundbuilding was a practical adaptation developed by populations living in this area, which is under water for several months every year.

As a social evolutionary category, the concept of chiefdom is still somewhat difficult to grasp empirically in Amazonia, due to the great diversity of social formations prevailing before the Conquest, and the still great lack of knowledge of these societies. Approaches that correlate material elements, such as mounds or complex architecture, with past social formations can be too rigid and incapable of explaining past social dynamics (Drennan 1995). It is better to attain a longitudinal grasp of processes of change in past social formations before attempting to classify them as tribes or chiefdoms. Roosevelt started her research in Marajó with the premise that mounds found there were built by a chiefdom. However, the previous discussion, based largely on Roosevelt's (1991b) monograph, shows that this matter is still open to inquiry

Roosevelt's general hypothesis on the political transformations brought about by the Conquest has the merit of generating research aimed at evaluating the impact of the contact in different areas of the Amazon Basin, since the contact was not a uniform and well-planned episode, but represented rather the combination of actions of different people with different interests that changed over time and space (Myers 1990). In the same way, this general hypothesis needs to incorporate the varying kinds of resistance or adjustment found among Amazonian Indians to cope with the encroachment of the European advance.

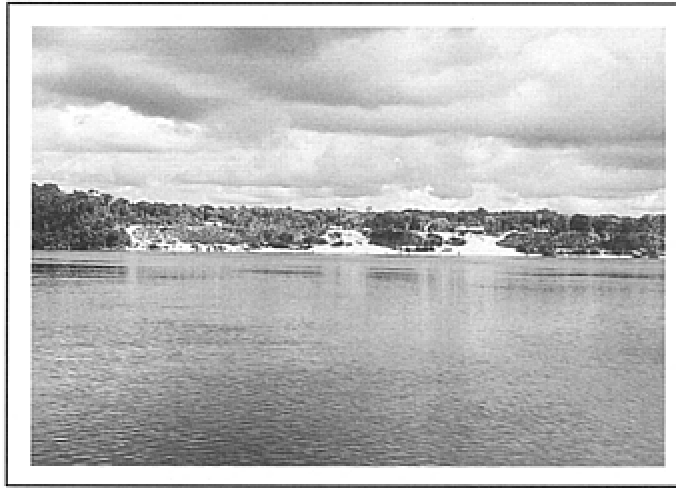


Figure 11.9 View of the Tukanoan indigenous village on the Uaupés River, in the Upper Rio Negro Basin, an area of extremely acidic and sandy soils. Archaeological research in the area indicates that pre-colonial native populations were not much denser than they currently are.

Thus in the Upper Rio Negro, Neves (1998) found no major differences between the size and density of the pre-colonial archaeological sites and the ethnographically documented longhouses found in the area until the mid-twentieth century (Fig. 11.9). In the Upper Xingú, on the other hand, Heckenberger (1996) found a very different picture with major variations between the archaeological and ethnographic patterns. As with the case of addressing correlations between linguistic and material culture patterns, the study of the impact of the Euro-pean Conquest demands the undertaking of localised studies so that an overall understanding of this varying historical process can be grasped.

CONCLUSIONS

The previous discussion shows how the available explanatory schemes in Amazonian archaeology are, to a lesser or a greater extent, still very much influenced by the theoretical background provided by Steward and his collaborators in *The Handbook of South American Indians*. Such influence can be perceived, for instance, in the repeated attempts to search for prime movers, normally environmental variables, to explain past social processes in the Amazon in a general fashion.

Some of the evidence discussed here indicates different frameworks for Amazonian archaeology. First, many current and past Amazonian social formations have a regional character through networks connecting local communities. Such a regional dimension, at least as it is known today, includes the circulation of people and goods over sometimes fairly large areas with distinct ecological characteristics. In many cases, these regional spheres of interaction are multilingual and, at least in the past, they ranged over areas with different ecological characteristics. However, these regional spheres of interaction do not, and did not, necessarily have a supra-local, chiefdom-like political organisation.

Second, a more complex ecological picture has been emerging for Amazonia during recent years (Moran 1993). There is now evidence of a broader ecological diversity in Amazonia than was previously believed. The consequences of this for archaeology are important because, as we have seen, explanatory models on

Amazonian prehistory have been consistently based on general ecological premises. Furthermore, recent work in ethnoecology, or historical ecology (Balée 1989, 1994, 1995; Smith 1980) indicates that native Amazonian societies are not merely subjects of environmental determinism, but rather that they exert a creative influence over the environment, modifying it and overcoming expected ecological limitations (Politis 1996a, 1996b). As a consequence, it may be that what we see today as 'pristine' forest in the Amazon is in fact a cultural landscape, a result of conscious human management or unconscious human activity over thousands of years.

These factors have important implications for Amazonian archaeology, for they present a picture substantially different from the classical 'single-village-isolated-in-the-forest' peripheral image of tropical forest societies, the 'standard model' (Viveiros de Castro 1996). They indicate, rather, the following points. Past Amazonian social formations were regional, and thus regional perspectives are needed for the conception and execution of archaeological research in Amazonia. Even if aboriginal Amazonian populations were much larger at the end of the fifteenth century than today, there is no clear *archaeological* indication yet available that some of these populations were politically organised into chiefdoms. Further, the existence of vast trade networks does not need to be an indicator of the previous existence of chiefdoms, but can rather be explained as the functioning of systems of regional interdependence spread through different ecological zones. It may be that former patterns of social organisation in the Amazon do not fit into currently available typologies, such as band, tribe or chiefdom.

Strong ethnic boundaries or chiefdoms could have actually developed as a result of the European Conquest, instead of having been destroyed by it. The evidence of management studies warns against the use of radical monocausal determinism as an explanatory tool. Instead, specific ecological conditions need to be considered before one postulates correlations between patterns in the archaeological record and environmental conditions. This can be better achieved through a regional approach where the ecological variables can be controlled and their possible correlations with past dynamics established more firmly The heuristic value of the *várzealterra firme* dichotomy needs to tested with further archaeological work in *terra firme* areas, given ethnographic data indicating that some *várzea* societies consistently underexploit the resources in their habitats.

REFERENCES

Adams, J. and Faure, H. (1997) 'Preliminary vegetation maps of the world since the last Glacial Maximum: an aid to archaeological understanding', *Journal of Archaeological Science* 24:623–47.

Arvelo-Jiménez, N. and Biord, H. (1994) 'The impact of conquest on contemporary indigenous peoples of the Guiana Shield: the system of Orinoco regional interdependence', in A.Roosevelt (ed.) *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives,* Tucson: University of Arizona Press. 55–78.

Balée, W. (1989) 'The culture of Amazonian forests', *Advances in Economic Botany* 7:1–21.

—— (1994) *Footprints of the Forest. Ka'apor Ethnobotany—The Historical Ecology of Plant Utilization by an Amazonian People,* New York: Columbia University Press.

—— (1995) 'Historical ecology of Amazonia', in L.Sponsel (ed.) *Indigenous Peoples and the Future of Amazonia: An Ecological Anthropology of an Endangered World,* Tucson: University of Arizona Press. 97–110.

Balée, W. and Moore, D. (1994) 'Language, culture, and environment: Tupí—Guaraní plant names over time', in A.Roosevelt (ed.) *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives,* Tucson: University of Arizona Press. 363–80.

Barbosa Rodrigues, J. (1888) *O Muimquitã,* Manaus: Tipografia do Amazonas.

Barnett, W. and Hoopes, J. (eds) (1995) *The Emergence of Pottery. Technology and Innovation in Ancient Societies,* Washington DC: Smithsonian Institution.

Barreto, M. (1992) 'Historia da pesquisa arqueológica no Museu Paraense Emílio Goeldi', *Boletim do Museu Paraense Emílio Goeldi* NS, Antropologia 8, 2:203–94.

Basso, E. (1973) *The Kalapalo Indians of Central Brazil,* New York: Holt, Rinehart and Winston.

Beckerman, S. (1979) 'The abundance of protein in Amazonia: a reply to Gross', *American Anthropologist* 81:533–60.

Biord-Castillo, H. (1985) 'El contexto multilingüe del sistema de interdependencia regional del Orinoco', *Antropológica* 63–4:83–101.

Blench, R. and Spriggs, M. (eds) (1997) *Archaeology and Language* I. *Theoretical and Methodological Orientations,* London: Routledge.

Brochado, J. (1980) 'The social ecology of the Marajoara chiefdom', unpublished MSc dissertation, University of Illinois.

—— (1984) 'An ecological model of the spread of pottery and agriculture into eastern South America', unpublished doctoral dissertation, University of Illinois.

Brochado, J. and Lathrap, D. (1982) 'Chronologies in the New World: Amazonia', unpublished manuscript.

Butt-Colson, A. (1973) 'Inter-tribal trade in the Guiana Highlands', *Antropológica* 34:1–69.

Carneiro, R. (1957) 'Subsistence in social structure: an ecological study of the Kuikuru Indians', unpublished doctoral dissertation, Department of Anthropology, University of Michigan.

—— (1970) 'A theory of the origin of the state', *Science* 169:733–8.

—— (1971) 'Review of "The Upper Amazon"', *American Journal of Archaeology* 75:237–9.

Colinvaux, P. (1987) 'Amazon diversity in light of the paleoecological record', *Quaternary Science Reviews* 6:93–114.

DeBoer, W. and Lathrap, D. (1979) 'The making and breaking of Shipibo-Conibo ceramics', in C.Kramer (ed.) *Ethnoarchaeology: Implications of Ethnography for Archaeology,* New York: Columbia University Press. 102–38.

DeBoer, W., Kintigh, K. and Rostoker, A. (1996) 'Ceramic seriation and site reoccupation in lowland South America', *Latin American Antiquity* 7, 3:263–78.

Denevan, W. (1966) *The Aboriginal Cultural Geography of the Llanos de Mojos of Bolivia,* Berkeley: University of California Press.

—— (1992a) 'The pristine myth: the landscape of the Americas in 1492', *Annals of the Association of American Geographers* 82, 3:369–85.

—— (1992b) 'Native American population in 1492: recent research and revised hemispheric estimate', in W.Denevan (ed.) *The Native Population of the Americas in 1492,* Madison: University of Wisconsin Press (2nd edn). 17–38.

—— (1996) 'A bluff model of riverine settlement in prehistoric Amazonia', *Annals of the Association of American Geographers* 86, 4:654–81.

Descola, P. (1986) *La nature domestique: symbolisme et praxis dans l'écologie des Achuar,* Paris: Foundation Singer-Polignac/Edition de la Maison des Sciences de l'Homme.

—— (1994) 'Homeostasis as a cultural system: the Jivaro case', in A.Roosevelt (ed.) *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives,* Tucson: University of Arizona Press. 203–24.

Dillehay, T., Ardila, G., Politis, G. and Beltrão, M. (1992) 'Earliest hunters and gatherers of South America', *Journal of World Prehistory* 6, 2:145–204.

Drennan, R. (1995) 'Chiefdoms in northern South America', *Journal of World Prehistory* 9, 3:301–40.

Dreyfuss, S. (1983–4) 'Historical and political anthropological interconnections: the multi-linguistic indigenous polity of the "Carib" islands and the mainland coast from the 16th to the 18th century', *Antropológica* 59–62:39–55.

—— (1993) 'Os empreendimentos coloniais e os espaços políticos indígenas no interior da Guiana Ocidental (entre o Orenoco e o Corentino) de 1613 a 1796', in E.Viveiros de Castro and M.Carneiro da Cunha (eds) *Amazônia: Etnologia e História Indígena,* São Paulo: Núcleo de História Indígena e Indigenismo, USP. 19–41.

Eden, M., Bray, W., Herrera, L. and McEwan, C. (1984) 'Terra Preta soils and their archaeological context in the Caquetá Basin of southeast Colombia', *American Antiquity,* 49, 1:125–40.

Erickson, C. (1995) 'Archaeological methods for the study of ancient landscapes of the Llanos de Mojos in the Bolivian Amazon', in P.Stahl (ed.) *Archaeology in the Lowland American Tropics: Current Analytical Methods and Applications,* Cambridge: Cambridge University Press. 66–95.

Erikson, P. (1992) 'Uma singular pluralidade: a etno-história pano', in M.Carneiro da Cunha (ed.) *História dos Índios no Brasil,* São Paulo: Cia das Letras, FAPESP, SMC. 239–52.

Evans, C. (1971) 'Review of "The Upper Amazon"', *American Anthropologist* 73:1414–16.

Evans, C. and Meggers, B. (1968) *Archaeological Investigations on the Rio Napo, Eastern Ecuador,* Washington DC: Smithsonian Institution (Smithsonian Contributions to Anthropology 6).

Falesi, I. (1974) 'Soils of the Brazilian Amazon', in C.Wagley (ed.) *Man in the Amazon.,* Gainesville: University Presses of Florida. 201–29.

Farage, N. (1991) *As Muralhas dos Sertões. Os Povos Indígenas no Rio Branco e a Colonização,* Rio de Janeiro: Paz e Terra.

Fausto, C. (1992) 'Fragmentos de historia e cultura Tupinambá: da etnologia como instrumento crítico de conhecimento etno-histórico', in M.Carneiro da Cunha (ed.) *História dos Índios no Brasil,* São Paulo: Cia das Letras, FAPESP, SMC. 381–96.

Feinman, G. and Neitzel, J. (1984) 'Too many types: an overview of sedentary prestate societies in the Americas', in M.Schiffer (ed.) *Advances in Archaeological Method and Theory,* vol. 7, London: Academic Press. 39–102.

Flowers, N. (1994) 'Subsistence strategy, social organisation, and warfare in central Brazil in the context of European penetration', in A.Roosevelt (ed.) *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives,* Tucson: University of Arizona Press. 249–69.

Galvão, E. (1960) 'Areas culturais indígenas do Brasil: 1900/1959', *Boletim do Museu Paraense Emílio Goeldi* NS, Antropologia 8.

Gross, D. (1975) 'Protein capture and cultural development in the Amazon Basin'. *American Anthropologist* 77, 526–49.

Guapindaia, V. (1993) 'Fontes históricas e arqueológicas sobre os Tapajó: a coleção "Frederico Barata" do Museu Paraense Emílio Goeldi', unpublished Masters dissertation, Universidade Federal de Pernambuco.

Hartt, C. (1885) 'Contribuiçao para a etnologia do vale do Amazonas', *Arquivos do Museu Nacional do Rio de Janeiro* 6:1–174.

Headland, T. and Bailey, R. (1991) 'Introduction: have hunter-gatherers ever lived in tropical rainforests independently of agriculture?', *Human Ecology* 19:2.

Heckenberger, M. (1996) 'War and peace at the shadow of empire: sociopolitical change in the Upper Xingu of southeastern Amazonia, AD 1250–2000', unpublished PhD dissertation, University of Pittsburgh.

Heckenberger, M., Neves, E. and Petersen, J. (in press) 'De onde vem os modelos?: a arqueología da origem dos Tupí e Guaraní', *Revista de Antropología,* USP.

Herrera, L., Bray, W. and McEwan, C. (1980–1) 'Datos sobre la arqueología de Araracuara (Comisaría del Amazonas Colombia)', *Revista Colombiana de Antropología* 23:185–251.

Herrera, L., Cavelier, L, Rodríguez, C. and Mora, S. (1992) 'The technical transformation of an agricultural system in the Colombian Amazon', *World Archaeology* 24, 1:98–113.

Hilbert, P. (1968) *Archäologische Untersuchungen am Mittlern Amazonas,* Berlin: Dietrich Reimer Verlag.

Hoopes, J. (1994) 'Ford revisited: a critical review of the chronology and relationships of the earliest ceramic complexes in the New World, 6000–1500 BC', *Journal of World Prehistory* 8, 1:1–49.

Jackson, J. (1983) *The Fish People: Linguistic Exogamy and Tukanoan Identity in Northwest Amazonia,* Cambridge: Cambridge University Press.

Kästner, K.P. (1992) *Historisch-ethnographische Klassification der Stämme des Ucayali-Beckens (Ost-Peru),* Frankfurt: IKO Verlag.

Kern, D. (1996) 'Geoquímica e pedogeoquímica de sítios arqueólogicos com Terra Preta na floresta nacional de Caxiuanã (Portel-Pará)', unpublished doctoral dissertation, Universidade Federal do Pará.

Kirch, P. and Green, R. (1987) 'History, phylogeny and evolution in Polynesia', *Current Anthropology* 28: 421–56.

Kristiansen, K. (1991) 'Chiefdoms, states, and systems of social evolution', in T.Earle (ed.) *Chiefdoms: Power, Economy, and Ideology,* Cambridge: Cambridge University Press. 16–43.

Lamb, J. and Vargas, P. (1995) ‘The many contexts of early Valdivia ceramics’, in W.Barnett and J.Hoopes (eds) *The Emergence of Pottery. Technology and Innovation in Ancient Socteties,* Washington DC: Smithsonian Institution. 157–68.

Lathrap, D. (1968a) ‘Aboriginal occupation and changes in river channel on the Central Ucayali, Peru’, *American Antiquity* 33, 1:62–79.

—— (1968b) ‘The “hunting” economies of the tropical forest zone of South America’, in R.Lee and I. DeVore (eds) *Man the Hunter,* Chicago: Aldine. 23–9.

—— (1970a) *The Upper Amazon,* London: Thames and Hudson.

—— (1970b) ‘Review of *Archäologische Untersuchungen am Mittlern Amazonas,* by P.Hilbert’, *American Antiquity* 35, 4:499–501.

—— (1973a) ‘Summary or model building: how does one achieve a meaningful overview of a continent’s prehistory’, *American Anthropologist* 75:1755–67.

—— (1973b) ‘The antiquity and importance of long-distance trade relationships in the moist tropics of pre-Columbian South America’, *World Archaeology* 5, 2:170–85.

—— (1973c) ‘Gifts of the cayman: some thoughts on the subsistence basis of Chavín’, in D. Lathrap and J.Douglas (eds), *Variation in Anthropology,* Urbana: Illinois Archaeological Survey 91–105.

—— (1974) ‘The moist tropics, the arid lands, and the appearance of great art styles in the New World’, in M.King and I.Traylor (eds) *Art and Environment in Native North America,* Lubbock: Texas Tech University Museum. 115–58.

—— (1977) ‘Our father the cayman, our mother the gourd: Spinden revisited or a unitary model for the emergence of agriculture in the New World’, in C.Reed (ed.) *Origins of Agriculture,* The Hague: Mouton. 713–51.

Lathrap, D. and Oliver, J. (1987) ‘Agüerito: el complejo polícromo más antiguo de America en la confluencia del Apure y el Orinoco (Venezuela)’, *Interciencia* 12:274–89.

Lathrap, D., Marcos, J. and Zeidler, J. (1977) ‘Real Alto: an ancient ceremonial centre’, *Archaeology* 30, 1: 2–13.

Lathrap, D., Gebhart-Sayer, A. and Mester, A. (1985) ‘The roots of the Shipibo art style: three waves on Imiriacocha or there were “Incas” before the Incas’, *Journal of Latin American Lore* 11:31–119.

Linné, S. (1928) ‘Les recherches archéologiques de Nimuendajú au Brésil’, *Journal de la Société des Américanistes de Paris* 20:71–92.

Lowie, R. (1948) ‘The tropical forests: an introduction’, in J.Steward (ed.), *Handbook of South American Indians,* vol. 3. Washington DC: Bureau of American Ethnology, Smithsonian Institution (Bulletin 143). 1–56.

Magalhães, M. (1994) *Arqueologia de Carajás: A Presença Pré—Histórica do Homen na Amazônia,* Rio de Janeiro: Companhia Vale do Rio Doce.

Martius, C. von (1982) *O Estado de Direito entre os Autóctones do Brasil,* Belo Horizonte/São Paulo: Editora Itatiaia/ Editora da Universidade de São Paulo.

Meggers, B. (1954) ‘Environmental limitation on the development of culture’, *American Anthropologist* 56: 801–23.

—— (1971) *Amazonia: Man and Culture in a Counterfeit Paradise,* Chicago: Aldine.

—— (1977) ‘Vegetational fluctuation and prehistoric cultural adaptations in Amazonia: some tentative correlations’, *World Archaeology* 8, 3:287–303.

—— (1979) ‘Climatic oscillation as a factor in the prehistory of Amazonia’, *American Antiquity* 44, 2: 252–66.

—— (1982) ‘Archaeological and ethnographic evidence compatible with the model of forest fragmentation’, in G.Prance (ed.) *Biological Diversification in the Tropics,* New York: Columbia University Press. 483–96.

—— (1985) ‘Advances in Brazilian archaeology, 1935–1985’, *American Antiquity* 50, 2:364–73.

—— (1987) ‘The early history of man in Amazonia’, in T.Whitmore and G.Prance (eds) *Biogeography and Quaternary History in Tropical America,* Oxford: Clarendon Press. 151–74.

—— (1990) ‘Reconstrução do comportamento locacional pré-histórico na Amazônia’, *Boletim do Museu Paraense Emílio Goeldi* 6, 2:183–203.

—— (1991) ‘Cultural evolution in Amazonia’, in A.Rambo and K.Gillogly (eds) *Profiles in Cultural Evolution. Papers from a Conference in Honor of Elman Service,* Ann Arbor: Museum of Anthropology, University of Michigan. 191–216.

—— (1992a) 'Cuarenta años de colaboración', in B.Meggers (ed.) *Prehistoria Sudamericana: Nuevas Perspectivas,* Washington DC: Taraxacum. 13–26.

—— (1992b) 'Prehistoric population density in the Amazon Basin', in J.Verano and D.Ubelaker (eds) *Disease and Demography in the Americas,* Washington DC: Smithsonian Institution. 197–205.

—— (1993–5) 'Amazonia on the eve of European contact: ethnohistorical, ecological, and anthropological perspectives', *Revista de Arqueología Americana* 8:91–115.

—— (1995) 'Judging the future by the past: the impact of environmental instability on prehistoric Amazonian populations', in L.Sponsel (ed.) *Indigenous Peoples and the Future of Amazonia: An Ecological Anthropology of an Endangered World,* Tucson: University of Arizona Press. 15–43.

Meggers, B. and Danon, J. (1988) 'Identification and implications of a hiatus in the archaeological sequence on Marajó Island, Brazil', *Journal of the Washington Academy of Sciences* 78, 3:245–53.

Meggers, B. and Evans, C. (1957) *Archaeological Investigations at the Mouth of the Amazon,* Washington, DC: Bureau of American Ethnology (Bulletin 167).

—— (1961) 'An experimental formulation of horizon styles in the tropical forest of South America', in S.Lothrop (ed.) *Essays in Pre-Columbian Art and Archaeology,* Cambridge, Mass.: Harvard University Press. 372–88.

—— (1970) *Como Interpretar a Linguagem da Cerâmica: Manual para Arqueólogos,* Washington DC: Smithsonian Institution.

—— (1973) 'A reconstituição da pré—história amazônica, algumas considerações teóricas', *Publicações Avulsas do Museu Paraense Emílio Goeldi* 20:51–69.

—— (1979) 'An experimental reconstruction of Tarumã village succession and some implications', in M.Margolis and W.Carter (eds) *Brazil: Anthropological Perspectives,* New York: Columbia University Press. 39–60.

—— (1980) 'Un método cerámico para el reconocimiento de comunidades pre-históricas, *Boletín del Museu del Hombre Dominicano* 11, 14:57–73.

—— (1983) 'Lowland South America and the Antilles', in J.Jennings (ed.) *Ancient South Americans,* San Francisco: W.H.Freeman. 287–335.

Meggers, B., Evans, C. and Estrada, E. (1965) *Early Formative Period of Coastal Ecuador: The Valdivia and Machalilla Phases,* Washington DC: Smithsonian Institution (Smithsonian Contributions to Anthropology 1).

Meggers, B., Dias, O., Miller, E. and Perota, C. (1988) 'Implications of archaeological distributions in Amazonia', in P.Vanzolini and W.Heyer (eds) *Proceedings of a Workshop on Neotropical Distribution Patterns,* Rio de Janeiro: Academia Brasileira de Ciências. 275–94.

Mendonça de Souza, A. (1991) *História da Arqueologia Brasileira,* São Paulo: Pesquisas (Serie Antropologia 46).

Migliazza, E. (1982) 'Linguistic prehistory and the refuge model in Amazonia', in G.Prance (ed.) *Biological Diversification in the Tropics,* New York: Columbia University Press. 497–519.

Miller, E. (1992) *Arqueologia nos empreendimentos hidrelétricos da Eletronorte; resultados preliminares,* Brasilia: Eletronorte.

Mora, S., Herrera, L., Cavelier, I. and Rodríguez, C. (1991) *Cultivars, Anthropic Soils and Stability: A Preliminary Report of Archaeological Research in Araracuara, Colombian Amazon,* Pittsburgh: University of Pittsburgh (Latin American Archaeology Reports 2).

Moran, E. (1993) *Through Amazonian Eyes,* Iowa City: University of Iowa Press.

Morey, R. and Morey, N. (1975) 'Relaciones comerciales en el pasado en los llanos de Colombia y Venezuela', *Montalban* 4(Universidad Católica 'Andres Bello', Caracas): 533–64.

Myers, T. (1973) 'Toward the reconstruction of prehistoric community patterns in the Amazon Basin', in D.Lathrap and J.Douglas (eds) *Variation in Anthropology,* Urbana: Illinois Archaeological Survey. 233–52.

—— (1981) 'Aboriginal trade networks in Amazonia', in P.Francis, P.Duke and F.Kense (eds) *Networks of the Past,* Calgary: University of Calgary Archaeological Association. 19–30.

—— (1990) *Sarayacu: Ethnohistorical and Archaeological Investigations of a Nineteenth-Century Franciscan Mission in the Peruvian Montana,* Lincoln: University of Nebraska Studies (New Series 68).

—— (1992) 'Agricultural limitations of the Amazon in theory and practice', *World Archaeology* 24, 1: 82–97.

Netto, L. (1885) 'Investigações sobre a arqueología Brasileira', *Arquivos do Museu Nacional do Rio de Janeiro* 6: 257–554.

Neves, E. (1995a) 'Village fissioning in Amazonia: a critique of monocausal determinism', *Revista do Museu de Arqueologia e Etnologia da Universidade de São Paulo* 4:195–209.

—— (1995b) 'Os Índios antes de Cabral: arqueología e historia indígena no Brasil', in A.Silva and L. Grupioni (eds) *A Tematica Indígena na Escola,* Brasilia: MEC, Mari, UNESCO. 171–92.

—— (1997) 'Dados sobre a arqueología do rio Negro', paper presented at the IX Congresso da Sociedade de Arqueologia Brasileira, Rio de Janeiro.

—— (1998) 'Paths in dark waters: archaeology as indigenous history in the Upper Rio Negro Basin, northwest Amazon', unpublished docotoral dissertation, Indiana University.

Neves, E. and Bartone, R. (1998) 'Preliminary results of an archaeological survey in the central Amazon', paper presented at the 63rd meeting of the Society for American Archaeology, Seattle.

Nimuendajú, C. (1982) *Mapa Etno-Histórico do Brasil e Regiões Adjacentes,* Brasilia: Instituto Brasileiro de Geografia e Estatísitica.

Noble, G.K. (1965) *Proto-Arawakan and its Descendants,* Bloomington: Indiana University (Publications in Anthropology and Linguistics 38).

Noelli, F. (1996) 'As hipóteses sobre o centro de origem e rotas de expansão dos Tupi', *Revista de Antropologia, USP* 39, 2:7–53.

Nordenskiöld, E. (1929) 'The Huxley Memorial Lecture for 1929: The American Indian as an inventor'', *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* 59:273–309.

—— (1930) *L'Archéologie du Bassin de l'Amazone,* Paris: Éditions G.van Oest.

Oliveira, A (1988) 'A Amazônia: modificações sociais e culturais decorrentes do processo de ocupação humana (séc. XVII ao XX)', *Boletim do Museu Paraense Emílio Goeldi* NS, Antropologia 4: 65–115.

Oliver, J. (1989) 'The archaeological, linguistic and ethnohistorical evidence for the expansion of Arawakan into northwestern Venezuela and northeastern Colombia', unpublished doctoral dissertation, University of Illinois.

—— (1991) 'Donald Lathrap: approaches and contributions to New World archaeology', *Antropológica* 75–6:5–60.

Pabst, E. (1991) 'Critérios de distinção entre terra preta e latossolo na regiao de Belterra e os seus significados para a discussão pedogenética', *Boletim do Museu Paranaense Emílio Goeldi* NS, Antropologia 7, 1: 5–19.

Perota, C. and Botelho, W. (1992) 'Les "Sambaquis" de Guará et des variations climatiques pendant l'Holocene', in M.Prost (ed.) *Evolution des Littoraux de Guyane et de la Zone Caraïbe Méridionale Pendant le Quaternaire,* Paris: Editions de l'ORSTOM. 379–95.

Politis, G. (1996a) 'Moving to produce: Nukak mobility and settlement patterns in Amazonia', *World Archaeology* 27, 3:492–511.

—— (1996b) *Nukak,* Bogota: Instituto Amazónico de Investigaciones Científicas, SINCHI.

Porras, P. (1987) *Investigaciones Arqueológicas a las Faldas del Sangay: Tradicion Upano,* Quito: Edición del Autor.

Porro, A. (1993) *As Crônicas do Rio Amazonas. Notas Etno-históricas sobre as Antigas Populações Indígenas da Amazônia.* Petrópolis: Vozes.

—— (1994) 'Social organisation and political power in the Amazon floodplain: the ethnohistorical sources', in A.Roosevelt (ed.) *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives,* Tucson: University of Arizona Press. 79–94.

—— (1996) *O Povo das Águas: Ensaios de Etno-História Amazônica,* Petrópolis: Vozes.

Posey, D. (1986) 'Manejo de floresta secundária, capoeiras, campos e cerrados (Kayapó)', in B.Ribeiro (ed.) *Suma Etnológica Brasileira,* vol. 1, *Etnobiologia,* Petrópolis: Vozes/FINEP. 173–85.

Prous, A. (1992) *Arqueologia Brasileira,* Brasilia: Editora da Universidade de Brasilia.

—— (1995) 'Archaeological analysis of the oldest settlements in the Americas', *Brazilian Journal of Genetics* 18, 4: 689–99.

Raymond, J.S. (1995) 'From potsherds to pots: a first step in constructing cultural context from tropical forest archaeology', in P.Stahl (ed.) *Archaeology in the Lowland American Tropics: Current Analytical Methods and Applications,* Cambridge: Cambridge University Press. 224–42.

Raymond, J.S., Oyuela-Caycedo, A. and Carmichael, P. (1994) ‘Una comparación de las tecnologías de la cerámica temprana de Ecuador y Colombia’, in I.Shimada (ed.) *Tecnología y Organización de la Producción Cerámica Prehispánica en los Andes,* Lima: Pontificia Universidad Católica del Peru, Fondo Editorial.

Reichel-Dolmatoff, G. (1971) *Amazonian Cosmos,* Chicago: University of Chicago Press.

—— (1976) ‘Cosmology as ecological analysis: a view from the rainforest’, *Man* 11, 3:307–18.

Rindos, D. (1984) *The Origins of Agriculture,* New York: Academic Press.

Rivière, P. (1984) *Individual and Society in Guiana. A Comparative Study of Amerindian Social Organization.* Cambridge: Cambridge University Press.

Rodrigues, A. (1985) ‘Evidence for Tupi-Carib relationships’, in H.Klein and L.Stark (eds) *South American Languages: Retrospect and Prospect,* Austin: University of Texas Press. 371–404.

—— (1986) *Línguas Brasileiras: Para o Conhecimento das Línguas Indígenas,* São Paulo: Edições Loyola.

Roosevelt, A. (1980) *Parmana: Prehistoric Maize and Manioc Subsistence along the Amazon and Orinoco,* New York: Academic Press.

—— (1987) ‘Chiefdoms in the Amazon and Orinoco’, in R.Drennan and C.Uribe (eds) *Chiefdoms in the Americas,* Lanham: University Presses of America. 153–85.

—— (1989) ‘Resource management in Amazonia before the Conquest’, *Advances in Economic Botany* 7: 30–62.

—— (1991a) ‘Determinismo ecológico na interpretação do desenvolvimento social indígena da Amazônia’, in W.Neves (ed.) *Origens, Adaptações e Diversidade Biológica do Homem Nativo da Amazônia,* Belém: Museu Paraense Emílio Goeldi. 103–41.

—— (1991b) *Moundbuilders of the Amazon: Geophysical Archaeology on Marajó Island, Brazil,* San Diego: Academic Press.

—— (1992) ‘Arqueologia Amazônica’, in M.Carneiro da Cunha (ed.) *História dos Índios no Brasil,* São Paulo: Cia das Letras, FAPESP, SMC. 53–86.

—— (1993) ‘The rise and fall of the Amazonian chiefdoms’, *L’Homme* 33, 2–4:255–82.

—— (1994) ‘Amazonian anthropology: strategy for a new synthesis’, in A.Roosevelt (ed.) *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives,* Tucson: University of Arizona Press. 1–29.

—— (1995) ‘Early pottery in the Amazon. Twenty years of scholarly obscurity’, in W.Barnett and J.Hoopes (eds) *The Emergence of Pottery. Technology and Innovation in Ancient Societies,* Washington DC: Smithsonian Institution. 115–31.

Roosevelt, A. (ed.) (1994) *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives,* Tucson: University of Arizona Press.

Roosevelt, A., *et al.* (1991) ‘Eighth millennium pottery from a prehistoric shell midden in the Brazilian Amazon’, *Science* 254:1621–4.

—— (1996) ‘Paleoindian cave dwellers in the Amazon: the peopling of the Americas’, *Science* 272: 373–84.

Rostáin, S. (1991) *Les Champs Surlevés Amérindiens de la Guyane,* Cayenne: Centre ORSTOM de Cayenne.

Rouse, I. (1953) ‘The circum-Caribbean theory, an archaeological test’, *American Anthropologist* 55, 2: 188–200.

—— (1985) ‘Arawakan phylogeny, Caribbean chronology, and their implications for the study of population movement’, *Antropológica,* 63–4:9–21.

—— (1986) *Migrations in Prehistory: Inferring Population Movements from Cultural Remains,* New Haven: Yale University Press.

—— (1992) *The Tainos: Rise and Decline of the People who Greeted Columbus,* New Haven: Yale University Press.

Rouse, I. and Cruxent, J. (1963) *Venezuelan Archaeology,* New Haven: Yale University Press.

Schaan, D. (1997) *A Linguagem Iconográfica da Cerâmica Marajoara,* Porto Alegre: Editora da Pontifícia Universidade Católica do Rio Grande do Sul.

Simões, M. (1977) ‘Programa nacional de pesquisas arqueológicas na bacia Amazônica’, *Acta Amazonica* 7, 3: 297–300.

—— (1981) ‘Coletores-pescadores ceramistas do litoral do Salgado (Pará)’, *Boletim do Museu Paraense Emílio Goeldi* NS, 78:1–31.

Simões, M. and Kalkmann, A. (1987) 'Pesquisas arqueológicas no Médio Rio Negro (Amazonas)', *Revista de Arqueologia* 4, 1:83–116.

Smith, N. (1980) 'Anthrosols and human carrying capacity in Amazonia', *Annals of the Association of American Geographers* 70, 4:553–66.

Sorensen Jr., A. (1967) 'Multilingualism in the northwest Amazon', *American Anthropologist* 69:670–84.

Spencer, C. and Redmond, E. (1992) 'Prehispanic chiefdoms of the western Venezuelan llanos', *World Archaeology* 24, 1:134–57.

Stahl, P. (1996) 'Holocene biodiversity: an archaeological perspective from the Americas', *Annual Review of Anthropology* 25:105–26.

Stahl, P. and Zeidler, J. (1990) 'Differential bone-refuse accumulation in food preparation and traffic areas on an early Ecuadorian house floor', *Latin American Antiquity* 1, 2:150–69.

Steward, J. (1948) 'Culture areas of the tropical forests', in J.Steward (ed.) *The Handbook of South American Indians,* vol. 3, Washington, DC: Bureau of American Ethnology, Smithsonian Institution (Bulletin 143). 883–903.

Steward, J. and Faron, L. (1959) *Native Peoples of South America,* New York: McGraw Hill.

Sweet, D. (1974) 'A rich realm of nature destroyed: the middle Amazon valley, 1640–1750', unpublished doctoral dissertation, University of Wisconsin.

Thomas, D. (1972) 'An indigenous trade system of southeast Estado Bolivar, Venezuela', *Antropológica* 33: 3–37.

Ugent, D., Pozorsky, S. and Pozorsky, T. (1986) 'Archaeological manioc (manihot) from coastal Peru', *Economic Botany* 40:78–102.

Urban, G. (1992) 'A historia da cultura brasileira segundo as línguas nativas', in M.Carneiro da Cunha (ed.) *História dos Indios no Brasil,* São Paulo: Cia das Letras, FAPESP, SMC. 87–102.

—— (1996) 'On the geographical origins and dispersion of Tupian languages', *Revista de Antropologia, USP* 39, 2: 61–104.

Van der Merwe, N., Roosevelt, A. and Vogel, J. (1981) 'Isotopic evidence for prehistoric subsistence change at Parmana, Venezuela', *Nature* 292:536–8.

Verswijver, G. (1978) 'Separations et migrations des Mekrãgnoti, groupe Kayapó du Brésil Central', *Bulletin de la Société Suisse des Américanistes* 42:47–59.

—— (1992) *The Club-Fighters of the Amazon. Warfare Among the Kaiapó Indians of Central Brazil,* Gent: Rijksuniversitet.

Viveiros de Castro, E. (1992) *From the Enemy's Point of View.* Chicago: University of Chicago Press .

—— (1996) 'Images of nature and society in Amazonian ethnology', *Annual Review of Anthropology* 25: 179–200.

Wallace, A.R. (1905) *Travels on the Amazon and Rio Negro,* London: Ward, Lock.

Whitehead, N. (1990) 'Carib ethnic soldiering in Venezuela, the Guianas, and the Antilles', *Ethnohistory* 34, 4:357–85.

—— (1993) 'Ethnic transformation and historical discontinuity in Native Amazonia and Guyana, 1500–1900', *L'Homme* 33, 2–4:285–305.

—— (1994) 'The ancient Amerindian policies of the Amazon, the Orinoco, and the Atlantic coast: a preliminary analysis of their passage from antiquity to extinction', in A.Roosevelt (ed.) *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives,* Tucson: University of Arizona Press. 33–53.

—— (1995) 'The historical anthropology of text: the interpretation of Ralegh's *Discoverie of Guiana*', *Current Anthropology* 36, 1:53–74.

Whitmore, T. and Prance, G. (eds) (1987) *Biogeography and Quaternary History in Tropical America.* Oxford: Clarendon Press.

Whitten, R. (1979) 'Comments on the history of holocene refugia in the culture history of Amazonia', *American Antiquity* 44, 2:238–51.

Wüst, I. (1994) 'The eastern Bororo from an archaeological perspective', in A.Roosevelt (ed.) *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives,* Tucson: University of Arizona Press. 315–42.

Zucchi, A. (1991) 'Las migraciones Maipures: diversas líneas de evidencias para la interpretación arqueológica', *America Negra* 1:113–38.

—— (1993) 'Datos recientes para un nuevo modelo sobre la expansion de los Grupos Maipures del norte', *America Negra* 6:131–48.

Zucchi, A., Tarble, K. and Vaz, J. (1984) 'The ceramic sequence and new TL and C–14 dates for the Agüerito Site of the Middle Orinoco, Venezuela', *Journal of 'Field Archaeology* 11:155–80.

Chapter Twelve
Pre-Columbian metallurgy and social change
Two case studies from Colombia

Carl Henrik Langebaek R.

> To say that the jaguar was very important in indigenous thought, or that the Indians worshipped the dead, or that here and there stylized faces were represented, or that the objects had spangles, is saying nothing and contributes nothing to archaeology
>
> (Alicia Dussán de Reichel 1979:41)

Archaeologists have always been fascinated by metallurgy in South America, yet our understanding of processes of social change has not been particularly enlightened by studies of ancient metallurgy. At a general level there seems to be some consensus that the study of pre-Columbian metallurgy is important, but there is a great deal of confusion on how to combine knowledge on metallurgy with the broader archaeological goal of understanding social change. Such confusion arises because most archaeologists focus on the study of metallurgy as a goal in itself. Thus to establish similarities between gold objects over broad areas, to find evidence of the oldest metal adornment, or the most remarkable technological achievement, are regarded as research priorities. Still, whatever improvements in the study of pre-Columbian metal objects occur, there is going to be little progress if such studies are not aimed at understanding social change. Therefore, archaeologists should consider their questions about metalworking within the broader framework of understanding how societies function and change (Lechtman 1988).

This chapter will not provide a state-of-the-art summary of studies on metallurgy in South America; reviews are available elsewhere (Root 1963; Benson 1979; Lechtman 1979; Helms 1981; Jones 1984). Rather, it will focus on the archaeological issue of social change and how it can be addressed by using metallurgical data. Metallurgy is found in a wide variety of societies in which metal adornments are used in socially differentiated ways. In what follows, two assumptions often made by archaeologists will be described and criticised. The first assumption is that metallurgy plays an active role in the development of complex societies and that these societies are the only ones able to practise metallurgy. The second assumption is that elaboration of impressive gold objects provides a reliable measure of social complexity. The first assumption will be examined by analysing ethnographic information from lower Central and South American societies. The second will be addressed using archaeological material from northern South America, particularly the Cauca Valley, and the Sierra Nevada de Santa Marta, in Colombia.

METALLURGY AND SOCIAL COMPLEXITY

Metalworking and social complexity have traditionally been considered as related traits. It is often claimed that goldworking only developed in complex and politically centralised societies. There is a large body of literature which supports such a view for diverse regions, such as England and the Mediterranean (Renfrew

1972), Denmark (Kristiansen 1978), Borneo (Harrison and Stanley 1970), and lower Central America (Helms 1979; Roosevelt 1979; Snarskis 1984). Moreover, in some cases the emergence of social ranking is seen as resulting from the availability of valuable metal goods and the development of their production (see Renfrew 1986). In contrast, for other authors—notably Rowlands (1971)—ethnographic information does not support the hypothesis that metalworking necessarily correlates with social complexity, or that it played a significant role in the emergence of complex societies.

The argument that there is no straightforward relationship between the presence of metal artifacts and social complexity in the Americas will be developed in this chapter. Several societies reached a significant level of social complexity without the use of metal adornments, and, equally importantly, egalitarian societies did use metal adornments. Nonetheless, a relationship between the use of metal adornments and social complexity did exist, although a complex one, that should be useful in the future in the identification and study of complex societies. More specifically, the relationship between the number of *social persona* identified by the use of metal adornments is argued to be isomorphic with the degree of social complexity when metal adornments were actually used.

Social complexity and an increase in the number of *social persona* identified in a society correlate with the subdivision or fragmentation of social sub-units, and the increased variations in social distinctions among members of a given society. Social differentiation which is based on redistribution (Service 1960: 180) or exploitation (Earle 1991), although an important debate in anthropology, is irrelevant to the present argument. *Social persona* is taken to be the sum total of identities (gender, age, etc.), and is assumed to contain information about the social status of members of a society (Saxe 1970:4–7). As the use of metal adornments conveys precise 'information' about such social distinctions, there will be more discrete sub-units of information (according to variables such as age, sex, status and chieftainship) the more social distinctions there are. Therefore, the use of metal adornments is of relevance to archaeologists in identifying and comparing degrees of social complexity, not as a presence-absence dichotomy, nor based on the quality of craftsmanship, but rather according to variations in their use.

Metalworking and social complexity: a review of the arguments

Metalworking and social complexity are said to be interrelated for political and economic reasons. Frequently, working gold, silver or any other metal is seen as the task of full-time specialists. It has been argued that the development of metalworking necessitates a complex social setting because it requires specialisation in the process of smelting and/or the circulation of either the raw material or the finished goods (Childe 1934). Metal objects are also seen as 'means of communication' conveying messages that enhance the role of an élite. In the Old World, Renfrew states that metal objects were first associated 'with high prestige and evidently regarded as of high value' (1986:144).

Lechtman (1979:31) states that in South America metals were used for making many objects, but rarely for making tools. The association between technology and systems of thought has been interpreted in much the same way as in the Old World. As such, in Panama it has been claimed that the aggressive and warlike attributes of some gold ornaments enhanced the status of chiefs in highly competitive societies (Linares 1977). Furthermore, it has been suggested (Helms 1979) that competition for gold objects constituted the basis of chiefly power. As Roosevelt (1979:70) notes, Central American metal adornments may be related to social complexity insofar as they constituted a source of wealth for chiefs. Similarly, Reichel-Dolmatoff (1986:31) explicitly states that there is a relationship between goldworking and chiefdoms in Colombia. According to Reichel-Dolmatoff, chiefdoms in Colombia are best characterised by the emergence of an élite of shamans. The basis of the shamans' power rested on the manipulation of esoteric knowledge through the

use of paraphernalia in which gold objects played a crucial role. Gold was suitable for this purpose because of its natural properties, its brilliance and colour being amongst the most valued (Lechtman 1979, 1988; Reichel-Dolmatoff 1986).

In a similar way to the Old World, it is not only the 'meaning' of metal objects and their political and economic manipulation by the indigenous élites that are related to social complexity. The organisation of labour that is required to produce such objects is seen as evidence of a complex social organisation. Roosevelt (1979) argues that in Panama people supplied the chief with gold, and that the chief's house served as a workshop for goldsmiths. Thus the élite had the privilege of owning and disposing of gold (Roosevelt 1979:79).

Few archaeologist would contest the fact that gold ornaments are frequently used to signify status, or that gold was a source of wealth, both in the economic and the ideological spheres within many societies. However, a straightforward relationship between the existence of metallurgy and complex societies is not always accepted. In contrast to the arguments above linking social complexity with the use of metals, Rowlands (1971) indicates that the frequently made correlation between the use of metals and the existence of specialist traders, smelters, smiths or shamans, is not supported by ethnographic information from Africa. In some societies there are only part-time smiths and their status is not high (Rowlands 1971:212). Similarly, in some cases the organisation of labour dedicated to the smelting and trade of metals does not require political centralisation or complex technologies, as egalitarian societies do in fact produce metal objects (Rowlands 1971). More recently, Ehrenreich (1991) has found that iron objects were crafted in the absence of craft specialists in Iron Age Britain, and that the relationship between socioeconomic complexity and craft production cannot be viewed as a monolithic process. If the production of metal objects cannot be easily assumed to be related to social complexity, then neither can their use.

The same debate is open for the Americas. Helms (1981) has argued against a straightforward relationship between the use of metal ornaments and social complexity in sixteenth-century South and Central America. Helms argues that the use of gold and copper varied according to the degree of social complexity. In the Intermediate Area the small chiefdoms' use of metal jewels 'acknowledges rank status differences between élites and commoners but also…mediates these distinctions by recognizing fundamental points of commonality' (Helms 1981:222). Thus the use of gold was not restricted to the élites, as such use was more 'democratic', with the style of gold objects more suited to individual or private use. In contrast, in the Central Andes, the metal ornaments in highly centralised states helped to 'emphasise social and ideological distance separating those of high status…from those of more mundane origins' (Helms 1981: 222).

Correlations between metalworking and social complexity

Two tests were carried out to evaluate the above-mentioned positions: firstly, a Chi-square test to evaluate the assumption that the use of metal adornments can accurately imply the existence of a complex society; and, secondly, a Spearman correlation coefficient to evaluate the relationship between social complexity and the number of social distinctions marked by the use of metal adornments.

The sample

The comparison between degrees of social complexity and the use of metals is based on ethnographic and ethnohistoric information from twenty-five Central and South American societies. The information was compiled from the Human Relations Area Files (HRAF) at the University of Pittsburgh (see Langebaek

1991 for a summary of the results). Societies were ranked according to both their social complexity and the number of social distinctions marked by the use of metal adornments.

The ranking in terms of social complexity is based on Murdock and Provost (1980), with some modifications. Murdock and Provost (1980:147–51) ranked thirty-two Central and South American societies according to ten variables:

1 Systems of writing or records.
2 Fixity of residence.
3 Degree of dependence on agriculture.
4 Average population of local communities.
5 Technological specialisation.
6 Complexity of means of transportation.
7 Money.
8 Density of population at the regional level.
9 Level of political integration.
10 Relative complexity of social hierarchies recognised within a society.

These criteria were accepted as reasonably accurate in indicating social complexity, except for variable seven—use of money—which was dropped. From the thirty-two societies originally studied by Murdock and Provost, seven were not included in the sample because of lack of information on them in the HRAF. Scores of social complexity are summarised in Table 12.1.

The ranking of societies according to the social persona identified by the use of metal adornments followed the following criteria: societies were given different scores according to whether (1) they used metal adornments at all; (2) metal ornaments marked age differences; (3) they marked sex differences; (4) they marked status differences, regardless of sex or age; (5) people, with the chief's permission, used the most impressive ornaments; (6) chiefs themselves, or their kin, were readily recognised by their use of particular metal adornments.

It is assumed that if a society meets all of these criteria then the use of metal ornaments shows more social distinctions than in societies that meet fewer criteria. A society where no use of metal ornaments is reported gets the lowest score possible (zero); a society that meets all the criteria gets a score of six. The scores in terms of social distinctions marked by the use of metal adornments are shown in Table 12.2.

The results

Out of the twenty-five societies studied, eleven do not use metal adornments. At first glance it becomes clear that it is not feasible to relate the presence of metal adornments and the existence of social complexity. Societies such as the Callinango and Tupinamba do not use metal ornaments and yet score very highly in terms of social complexity.

The societies can somewhat arbitrarily be classified as 'complex' (more than thirteen on the Murdock and Provost scale) and 'simple' (thirteen or less on the scale). If these two groupings of societies are compared in terms of presence-absence of metal adornments, eight societies are simple and use metal adornments, eight are simple and do not use them, six societies are complex and have metal ornaments, whereas three are complex and do not use them (Table 12.3). A simple

Table 12.1 Scores of social complexity (after Murdock and Provost 1980:154–5, with modifications)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Total
Miskito	0	4	3	2	2	0	2	2	0	15
Talamanca	1	4	3	0	2	0	2	1	0	13
Cuna	2	4	3	3	3	0	3	2	1	21
Guajiro	1	3	4	2	2	0	2	1	1	16
Callinago	1	3	4	2	2	0	2	1	1	16
Warao	1	1	1	0	2	0	0	1	0	6
Yanomamo	0	3	3	1	0	0	0	1	0	8
Barama	1	3	2	0	1	0	0	1	0	8
Saramacca	2	4	3	1	1	0	2	3	0	16
Munduruco	0	4	3	1	2	0	0	1	0	11
Cubeo	0	4	3	0	1	0	0	1	1	10
Cayapa	0	4	3	3	2	0	1	1	0	14
Jivaro	0	3	3	0	2	0	0	0	0	8
Inca	2	4	4	1	4	1	2	4	4	26
Aymara	2	4	4	3	3	1	4	2	1	24
Siriono	0	1	1	0	1	0	0	1	0	4
Nambicuara	0	1	2	0	2	0	0	1	0	6
Trumai	0	4	3	0	2	0	0	1	0	10
Ramcocamecra Timbira	1	3	3	2	2	0	1	1	0	13
Tupinamba	0	3	3	3	2	0	0	2	1	14
Cayua	0	1	2	0	2	0	0	1	0	6
Abipon	0	0	0	2	2	1	0	1	3	9
Mapuche	1	4	4	0	3	3	3	2	1	21
Tehuelche	0	0	0	1	3	1	0	1	0	16
Yahgan	0	0	0	0	0	0	0	1	0	1

Chi-square test indicates that there is no strong correlation between ‘complexity’ and the use of metal adornments (X2:0.64, d.f: 1, ^{2}:0.0045 and 0.7<P<0.8). There is a 70–80 per cent chance of getting a sample this size with this strong a relation from a universe with no relation between the two variables. Thus it is clear that the presence of metal adornments alone cannot be taken as accurately indicating ‘social complexity’.

The independence of social complexity and the use of metal ornaments should come as no surprise. At the time of the Spanish Conquest the use and even production of metal adornments was widespread in South America, including societies such as the Inca (Emmerich 1965) and egalitarian communities, such as those of the Lower Magdalena (Martínez 1989), the Middle Orinoco (AGN Negocios Exteriores 3), and northwestern Colombia (AGI Santa Fé 93). Among the Incas the state controlled mines and specialists (Sallnow 1989), whereas the Lower Magdalena chiefs were the specialists in the working of gold (Martínez 1989). For the Inca élite gold and silver might have been used as a source of wealth (D’Altroy and Earle

1985), whereas amongst the Muisca gold was dumped into sacred highland lakes (Dussán de Reichel 1979: 44; Reichel-Dolmatoff 1986).

Nonetheless, if the ranking of societies according to the degree of social complexity is compared with their ranking according to social distinctions marked by the use of metal adornments a clear pattern emerges. Table 12.4 summarises the ranking of twenty-five societies according to two

Table 12.2 Scores of social distinctions marked by the use of metal adornments

	Use of metal adornments					
	Open	Age	Sex	Status	Appointed Chiefs	Chiefs
Miskito	0	1	0	0	0	0
Talamanca	0	1	0	1	1	1
Cuna	0	1	1	1	1	1
Guajiro	0	1	0	1	0	0
Callinago	0	0	1	1	0	0
Warao	0	0	1	0	0	0
Yanomamo	1	0	0	0	0	0
Barama	0	0	0	0	0	0
Saramacca	0	0	0	0	0	0
Munduruco	0	0	0	0	0	0
Cubeo	0	0	1	0	0	0
Cayapa	0	0	0	0	0	0
Jivaro	0	0	0	0	0	0
Inca	0	1	0	1	1	1
Aymara	0	0	1	1	1	1
Siriono	0	0	0	0	0	0
Nambicuara	0	0	0	0	0	0
Trumai	0	0	0	0	0	0
Ramcocamecra Timbira	1	0	0	0	0	0
Tupinamba	0	0	0	0	0	0
Cayua	0	0	0	0	0	0
Abipon	0	1	1	0	0	0
Mapuche	0	0	1	0	0	1
Tehuelche	0	0	1	0	0	1
Yahgan	0	0	0	0	0	0

variables measured in an ordinal scale. The correlation coefficient was obtained using the Spearman rank correlation formula (rho), as explained by Siegel (1956:202–13). In a scale from zero to one the relation is 0. 79 (t:8.26 0.01<P). There is a less than 1 per cent chance of getting a relation as strong as 0.79 from a sample where the two variables—social distinctions marked by the use of metal adornments and social complexity—are not related.

Table 12.3 Chi-square analysis: social complexity vs metal adornments

	metal adornments	
present	*absent*	
'simple'	8	8
societies	(exp. 8.96)	(exp. 7.04)
'complex'	6	3
societies	(exp. 5.04)	(exp. 3.96)

Archaeologists can obtain important insights for the study of complex societies by the analysis of who used metal ornaments and who did not, in terms of a presence-absence distinction. The use of metal adornments *per se* does not necessarily correlate with social complexity. The common argument that the emergence of élites can be inferred from the finding of metal ornaments, regardless of considerations of context, is not supported by the analysis. In contrast, there is a correlation between how metal ornaments were used and social complexity; wherever gold objects were used, they were used in a way that was isomorphic with social stratification.

Table 12.4 Ranking of societies based on social complexity and social distinctions marked by the use of metal adornments

	Social complexity	*Social distinctions marked by the use of metal adornments*
Inca	1	5.6
Aymara	2	5.6
Cuna	3	2.8
Mapuche	3	8.4
Saramacca	4	14.0
Callinago	4	8.4
Guajiro	4	8.4
Miskito	5	11.2
Cayapa	6	14
Tupinamaba	6	14
Talamanca	7	5.6
R-Timbira	7	11.2
Munduruco	8	14
Trumai	9	14
Cubeo	9	11.2
Abipora	10	8.4
Yanomamo	11	11.2
Jivaro	11	14
Barama	11	14
Tehuelche	12	8.4
Nambicuara	12	14
Warao	12	11.2
Cayua	12	14

	Social complexity	*Social distinctions marked by the use of metal adornments*
Siriono	13	14
Yahgan	14	14

The cross-cultural information analysed here suggests that archaeologists have accurate means of identifying social complexity by estimating the number of social distinctions marked by the use of metal adornments. Similarly, such distinctions may provide a solid basis for comparing the degree of social complexity between different societies. In what follows, an attempt will be made to evaluate traditional interpretations of social change in northern South America based on the use of metal adornments.

METALLURGY AND SOCIAL CHANGE: A VIEW FROM NORTHERN SOUTH AMERICA

Northern South American archaeology provides a case in which traditional interpretations about social change can be evaluated. Goldwork studies in northern South America have emphasised iconographic and technological issues, while little is known about the relationship of metallurgy with issues of social change. A great deal of emphasis has been placed on establishing interregional connections (Bray 1984; Cooke and Bray 1985; Hosler *et al.* 1990; Jones 1979; Root 1963:224–5), and defining culturally homogeneous ‘horizons’ and ‘traditions’ on the basis of shared stylistic traits of élite goods over large areas (Bray 1984; Willey 1948) (Fig. 12.1). In southern and western Colombia societies shared many traits in the iconography of gold objects before the tenth century AD. Such traits included an emphasis on hammering, the use of gold instead of alloys, the elaboration of a few unique and impressive adornments, and great store given to a particular iconography. It is assumed, therefore, that there was cultural homogeneity among societies in the region (Pérez de Barradas 1954; Plazas and Falchetti 1983). Also, since many of the metal adornments are truly spectacular, it is often argued that goldwork is related to the emergence of complex chiefdoms (Reichel-Dolmatoff 1986).

After *c.* AD 1000 pre-Columbian societies in Colombia elaborated and used metal adornments of a different character. The previous emphasis on gold was replaced by an increased use of alloys, particularly copper-gold alloys, and casting became more popular than hammering as the favoured manufacturing technique. Relatively large objects, rich in iconographic representations, continued to be elaborated, but overall production was focused on more numerous and less impressive adornments. Therefore, it is usually assumed that this change, which occurred at *c.* AD 1000, was the result of invasions by less developed societies, or of an increased decadence in social organisation (Plazas and Falchetti 1983).

However, the archaeology of goldwork in Colombia suggests an alternative view. Archaeological research in Calima, in the western cordillera, and Tairona, in the Sierra Nevada de Santa Marta in Colombia, indicates that at early stages of social complexity élite items were copies of exotic objects from abroad. Consequently, the distribution of ‘styles’ would have been a byproduct of chiefly competition (Gnecco 1995; Langebaek 1992, 1995), regardless of degree of cultural affinity. During later periods, chiefly élites in both regions seem to have used other, less grandiose, means to maintain their status. Nonetheless, overall social complexity does not seem to have decreased. On the contrary, the number of *social persona* differentiated by the use of gold ornaments increased.

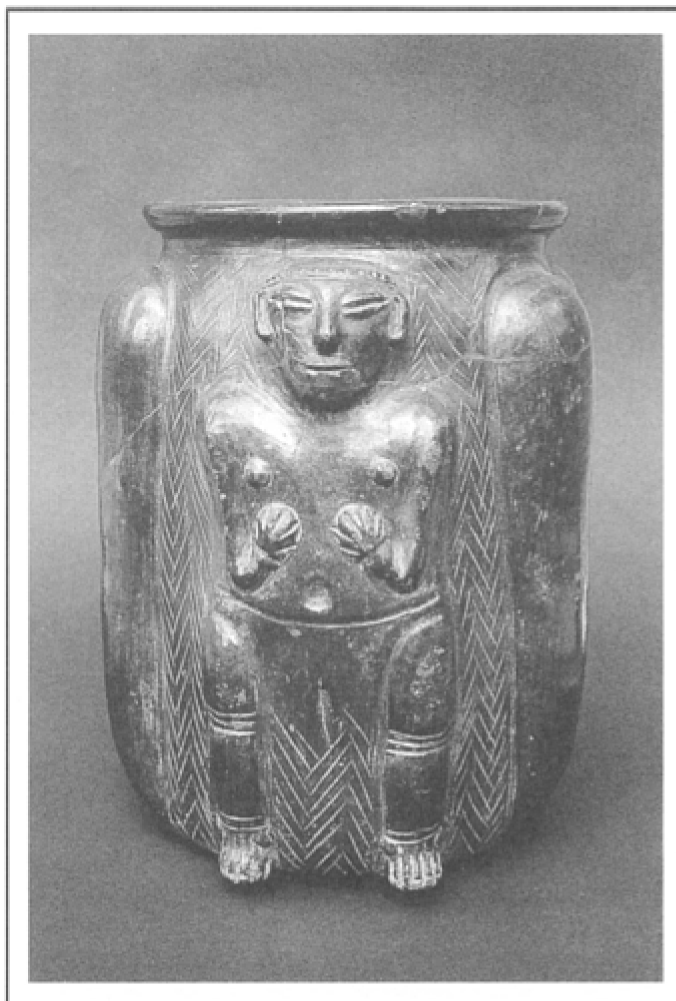


Figure 12.1 Funerary urn (Quimbaya Clásico, *c.* fifth century BC). The goldwork associated with this style served as an inspiration for many societies in northern Colombia and Panama, which allowed for all sorts of diffusionist speculations (Instituto Colombiano de Antropología. Photograph by J.C.Balcazar).

Calima

Long-term research in Calima has identified three archaeological periods: Ilama (1500–1 BC), Yotoco (AD 1–1200) and Sonso (AD 1200–1600). During the Ilama period the cultivation of maize, squashes, beans and other plants has been documented (Bray 1988:8). However, knowledge of economic activities and patterns of social organisation remains scant, although the available evidence does suggest some degree of social differentiation (Bray 1988:8; Herrera *et al.* 1982:390–2). Ilama burials are usually of the shaft and chamber style, and no more than 2 m deep, although some burials reach 4 m (Herrera *et al.* 1982:390). There are also differences in burial goods: offerings include richly decorated pottery, obsidian mirrors and gold objects, including beads, discs, nose ornaments and face masks made of hammered gold sheet (Bray 1988:9). The

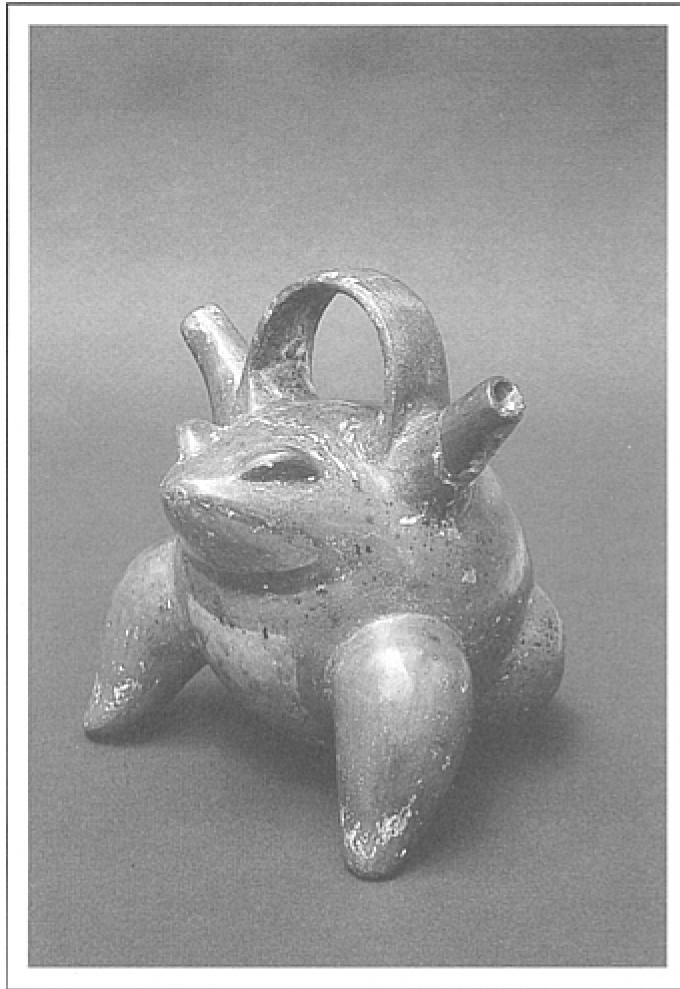


Figure 12.2 Calima-Yotoco period pottery. This pottery is associated with the splendour of Calima goldwork, often related to a period of major social complexity (Instituto Colombiano de Antropología. Photograph by J.C.Balcazar).

evidence suggests that gold objects were not common during the Ilama period, and that only a small number of people had access to them.

During the Yotoco period both population growth and agricultural intensification are reported (Bray 1988: 9). The swampy lands in the Valle El Dorado were drained for maize cultivation, and a network of roads was constructed connecting the Middle Cauca with other regions in southern Colombia (Herrera *et al.* 1982). Furthermore, evidence of social distinctions is clear: burials from the Yotoco period are similar to those of the Ilama period, but the goldwork is more impressive and the status items more grandiose (such as diadems, ear-spools, pectorals, and bracelets of hammered gold). Fine casted flasks and dippers associated with coca chewing have been found (Bray 1988:9). More importantly, it is clear that access to these items was

limited to a small number of individuals: most Yotoco burials consist of one or two pots, while a few are found with large quantities of rich gold adornments and pottery (Fig. 12.2).

The impressive goldwork and, in general, the élite-associated Yotoco items are not entirely of local inspiration. Many iconographic traits of Yotoco goldwork are shared with the Upper Magdalena Valley (Pérez de Barradas 1954:324). Furthermore, some gold adornments from the Pacific coast (Tumaco) have been found in the Calima area (Bray 1988: 10). The use of coca may also be of foreign origin, since the plant was originally domesticated in the Central Andes. There is evidence, too, that Yotoco items were traded over long distances, as some Yotoco pottery has been found in Antioquia and the Magdalena Valley (C.Rodríguez 1989).

During the Sonso period there were changes in terms of economic activities and political organisation. Large platforms were constructed and slope agriculture predominated. Furthermore, Sonso pottery and goldwork are less impressive compared with that of Yotoco—crude designs replaced the complex motifs of the Yotoco pots. Moreover, the repertoire of Yotoco goldwork was replaced by small, simple nose-rings and ear ornaments (Herrera *et al.* 1982:397) frequently made in tumbaga (Scott 1981:22–3). Evidence from the Sonso period is frequently taken as indicating the invasion of less developed chiefdoms (Bray 1988). It appears that, in contrast to the Yotoco period, the use of gold objects was not limited to the élite, as nose and earrings are present in many Sonso pots that are found in most graves (see Bray 1988: figs. 71, 73, 85–7). If the cross-cultural analysis in the first part of this chapter is reliable, it would indicate that the use of gold objects differentiated more *social persona* than during the Yotoco period. In fact, late burials from the area show evidence of social differentiation (C.A.Rodríguez 1989:83). Some Sonso burials are 16 m deep with lateral chambers the size of small rooms (Herrera *et al.* 1982: 396). One Sonso grave excavated in Darién included a wooden coffin, ceramics and personal weapons made of a non-local wood (Schuler-Schoming 1981). There are indications that the Sonso population was larger than during the Yotoco period (Bray 1988: 10; Herrera *et al.* 1982). Furthermore, the construction of platforms that apparently began during the Sonso period implies the ability to mobilise large numbers of people, perhaps in the form of *corvée* labour. For example, in the construction of just one of the numerous Sonso platforms reported at the site of El Billar, some 3,600 m^3 of earth was removed (Herrera *et al.* 1982:400).

In contrast to the Yotoco, what seems to have marked differences in wealth during the Sonso period was the quantity of local goods deposited in burials and the energy invested in their construction, rather than foreign-inspired practices (although foreign goods were still appreciated, as the grave from Darién suggests). Some burials contain a large number of pots and a number of wooden artifacts, while others contain only a few pots (Herrera *et al.* 1982:397). In contrast to Yotoco, most élite items lack foreign inspiration; they were locally made, simple in design, but nonetheless served to mark social differences.

Tairona

In contrast to Calima, there has been no long-term research to provide archaeological data to answer questions of social change in the Sierra Nevada de Santa Marta. As a result, the archaeology of chiefdom evolution in the area is little known. However, available information does suggest the emergence of complex societies in the region, and provides another example of how gold objects were used at different stages of chiefdom evolution.

The initial population of the region by agricultural ceramists probably occurred before the first century AD (Langebaek 1987), although evidence of early occupation is scarce at best. The first evidence of goldwork belongs to the Neguanje period, which probably dates from *c.* AD 300 to 800. The latest pre-Columbian occupation is known as Tairona, and dates from AD 800 to 1500 (Bischof 1968).

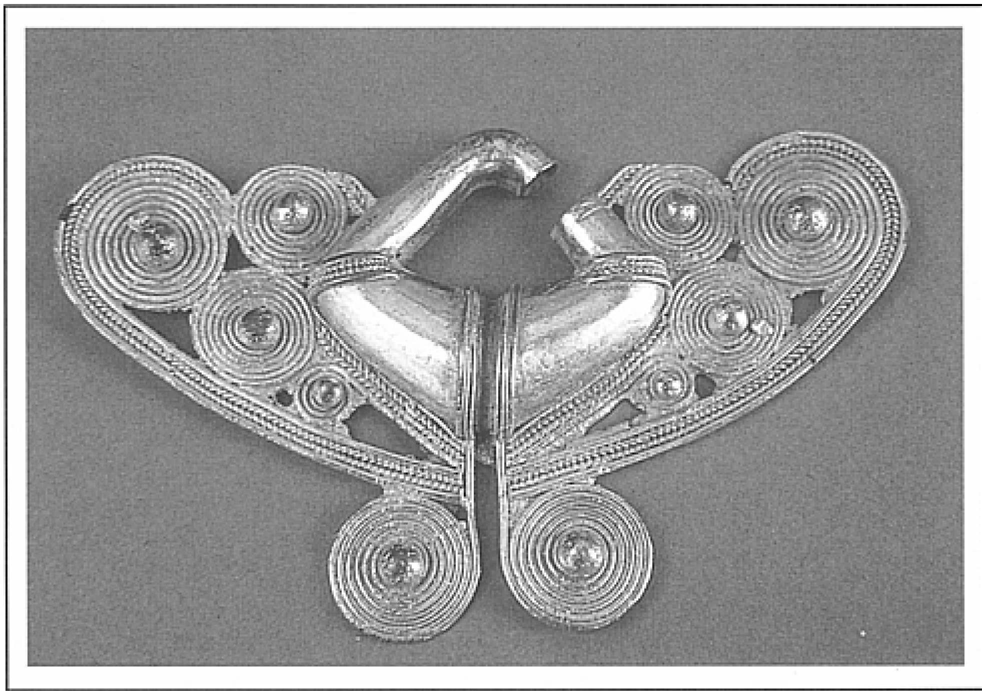


Figure 12.3 Late Tairona nose-ring. Despite outstanding craftsmanship, frequency suggests its use was not restricted to an élite (Instituto Colombiano de Antropología. Photograph by J.C.Balcazar).

During the Neguanje period the population was concentrated mainly in the coastal region, while occupation of the mountains was not as dense. Nonetheless, overall population density, even on the coast, seems to have been low. Little is known of social organisation, but the existence of a few impressive burials favours the impression of some degree of social differentiation. Information about the way in which metal adornments were used during the Neguanje comes from data collected by Mason (1939), who described some burials from the region, one of the most impressive of which belonged to the Neguanje period (Mason 1939:32–6). In a burial covered with stone slabs, several metal adornments were found, including beads, bells, pectorals and an anthropomorphic pendant. These adornments were found alongside pottery decorated with red and white motifs and 'jade' adornments. One of the striking features of these finds is that they all resemble 'foreign' materials: the goldwork is inspired by Quimbaya designs (Bischof 1968; Falchetti 1987); the 'jade' pendants are inspired by the bat-wing pendants popular in lower Central America; the pottery is similar to that of the Guajira Peninsula (Bischof 1968), and very different from the red decoration found on surface sherds in Neguanje domestic refuse.

At the time of the Spanish Conquest, population density both in the Sierra Nevada and on the coast seems to have been high (Cadavid and Herrera 1985). Furthermore, a great deal of evidence of public works has been found, including hillside house platforms, drainage systems, stone stairways, public plazas and a network of roads connecting the major settlements (Serje 1984), stone house platforms, and agricultural terraces (Cadavid and Herrera 1985). The Tairona burials excavated by Mason (1939) suggest that gold ornaments were more widely distributed among the population than during the Neguanje: gold is not rare enough in Tairona burials to suggest it was used exclusively by the élite (Fig. 12.3). Differences in rank

seem to be marked mainly by the number of goods left in the burials and the use of certain kinds of adornments. For example, small tumbaga nose-rings were quite popular, while large bird-shaped pendants were rare. Consequently, instead of a few impressive gold adornments, a great variety of metal objects were produced, some for the élite, and some for the commoners (or at least a large proportion of them). Furthermore, Tairona gold items, unlike the objects excavated in Neguanje burials, are not inspired by foreign motifs.

CONCLUDING REMARKS

The contribution that experts on South American ancient metallurgy can make to archaeology remains, for the most part, to be explored. The potential for such a contribution is high, but archaeologists need to think of their discipline not as the study of past remains, but as the study of ancient societies and how they change. By identifying patterns in the use of metal adornments archaeologists can learn a great deal in terms of identifying social complexity and understanding social change. As such, metal adornments do indeed mark social differences, but not in the straightforward way most archaeologists are inclined to believe. Furthermore, the way 'infor-mation' on social rank is conveyed changes: among the early chiefdoms in both Calima and Yotoco, chiefs found it necessary to display their status by the use of adornments inspired by foreign influence. Chiefdoms are usually defined as centralised, but not internally specialised systems where chiefs base their status on the mobilisation of surplus goods and the co-ordination of regional activities. However, chiefs are not merely administrators; they are also privileged members of their communities. A convincing ideology that legitimises such a situation must be developed (Drennan 1976). Competition to reproduce or obtain exotic and luxurious goods from abroad is one way of developing legitimisation (Helms 1979). The lavish burials of the Yotoco and Neguanje élite suggest that the early chiefly élites in Calima and Santa Marta maintained their status in such a way.

The same strategy for maintaining chiefly status appears not to have been so popular in Calima and Santa Marta at the time of the Spanish Conquest. Nonetheless, it would be incorrect to describe the transition from Yotoco to Sonso, or from Neguanje to Tairona, in terms of 'decadence'. Available information suggests that the population continued to grow, and signs of social complexity are found in the archaeological record. What did change was the way in which the élite maintained its prestige, and probably also the way society was organised overall. Early élites in Calima and the Sierra Nevada de Santa Marta displayed truly impressive adornments; gold was rarely, if ever, used by the commoners, but the use of gold served to mark few social distinctions. Furthermore, archaeological evidence of political centralisation is limited and population levels remained low. In Sonso and Tairona gold marked more social distinctions, although the objects used by the élites were not as impressive as in earlier periods. Also, there is some evidence of political centralisation, and population levels increased. Therefore there is reason to believe that later societies in both areas were more complex than is usually thought. Chiefs in Sonso and Tairona were able to engage the population in the construction of truly impressive public works, yet they were probably not the owners of grandiose goods that were, or looked, foreign. Why such a change took place is still unclear. What is clear, however, is that it is simplistic to assume decadence or migration as the only possible explanations.

REFERENCES

AGI. Archivo General de Indias, Sevilla, Spain.
AGN. Archivo General de la Nación, Bogota, Colombia.

Benson, E. (ed.) (1979) *Pre-Columbian Metallurgy of South America,* Washington DC: Dumbarton Oaks Research Library and Collections.

Bischof, H. (1968) 'Contribuciones a la cronología de la cultura tairona', paper delivered at the 38th International Congress of Americanists, Munich.

Bray, W. (1984) 'Across the Darién Gap: a Colombian view of Isthmian archaeology', in F.Lange and D.Stone (eds) *Archaeology of Lower Central America,* Albuquerque: University of New Mexico. 305–38.

—— (1988) 'Las culturas prehispánicas de Calima' *Arte de la Tierra: Culturas de Calima,* Bogota: Banco Popular.

Cadavid, G. and Herrera, L.F. (1985) 'Arqueología de la Sierra Nevada de Santa Marta', *Informes Antropológicos,* 1: 5–54, Bogota: Instituto Colombiano de Antropología.

Childe, V.G. (1934) *New Light on the Most Ancient East: The Oriental Prelude to European Prehistory,* London: Kegan Paul.

—— (1951) *The Most Ancient East*. London: Kegan Paul.

Cooke, R. and Bray, W. (1985) 'The goldwork of Panama: an iconographic and chronological perspective', in J.Jones (ed.) *Art of Precolumbian Gold. The Jan Mitchell Collection,* New York: Little, Brown. 35–45.

D'Altroy, T. and Earle, T. (1985) 'Staple finance, wealth finance, and storage in the Inca political economy', *Current Anthropology,*, 26, 2:187–206.

Drennan, R. (1976) 'Religion and social evolution in Formative Mesoamerica' in K.Flannery (ed.) *The Early Mesoamerican Village,* New York: Academic Press. 345–63.

Dussán de Reichel, A. (1979) 'Some observations on the prehistoric goldwork of Colombia', in E.Benson (ed.) *Pre-Columbian Metallurgy of South America,* Washington DC: Dumbarton Oaks Research Library and Collections. 41–52.

Earle, T. (1991) 'The evolution of chiefdoms', in T.Earle (ed.) *Chiefdoms, Power, Economy and Ideology,* Cambridge: Cambridge University Press. 1–15.

Ehrenreich, R.M. (1991) 'Metal working in Iron Age Britain: hierarchy or heterarchy', in R.Ehrenreich (ed.) *Metals in Society: Theory Beyond Analysis,* Narca Research Papers in Science and Archaeology 8, 2, Philadelphia: University of Pennsylvania.

Emmerich, A. (1965) *Sweat of the Sun and Tears of the Moon: Gold and Silver in Pre-Columbian Art,* Seattle: University of Washington Press.

Falchetti, A.M. (1987) 'Desarrollo de la orfebrería tairona en la provincia metalúrgica del norte colombiano', *Boletín de Arqueología,* 19:3–24.

Gnecco, C. (1995) 'Relaciones de intercambio y bienes de élite entre los cacicazgos del suroccidente de Colombia', in C.Langebaek and F.Cárdenas (eds) *Chieftains, Power and Trade: Regional Interaction in the Intermediate Area of the Americas,* Santafé de Bogota: Departamento de Antropología, Universidad de los Andes.

Harrison, T. and Stanley, J. (1970) *Gold and Megalithic Activity in Prehistoric and Recent West Borneo,* Ithaca: Southeast Asia Program 77, Cornell University.

Helms, M. (1979) *Ancient Panama: Chiefs in Search of Power,* Austin: University of Texas Press.

—— (1981) 'Precious metals and politics: style and ideology in the Intermediate Area and Perú', *Journal of Latin American Lore,* 7, 2:215–38.

Herrera, L., Cardale de Schrimpff, M. and Bray, W. (1982) 'El hombre y el Medio Ambiente en Calima (Altos Río Calima y Río Grande)', *Revista Colombiana de Antropología,* 24:381–424.

Hosler, D., Lechtman, H. and Holm, O. (1990) *Axe-Monies and Their Relatives,* Washington DC: Dumbarton Oaks Research Library and Collections.

Jones, J.(1979) 'Mochica works of art: a review', in E.Benson (ed.) *Pre-Columbian Metallurgy of South America,* Washington DC: Dumbarton Oaks Research Library and Collections. 53–104.

—— (1984) *The Art of Pre-Columbian Gold,* London: Weidenfeld and Nicolson.

Kristiansen, K. (1978) 'The consumption of wealth in Bronze Age Denmark—a study in the dynamics of economic processes in tribal society', *New Directions in Scandinavian Archaeology,* 1:158–90, The National Museum of Denmark.

Langebaek, C.H. (1987) 'Supervivencia de las prácticas de orfebrería muisca en el siglo XVI', *Universitas Humanistica,* 16, 27: 45–52.

—— (1991) 'El uso de adornos de metal y la existencia de sociedades complejas: una vision desde Centro y Suramérica', *Revista de Antropología y Arqueología,* 7, 2: 71–92.

—— (1992) *Noticias de Caciques Muy Mayores: Origen y Desarrollo de Sociedades Complejas en el Nororiente de Colombia y Norte de Venezuela,* Medellín: Universidad de Antioquia—Universidad de los Andes.

—— (1995) 'Patterns of human mobility and élite finances in 16th century northern Colombia and western Venezuela', in C.H.Langebaek and F.Cárdenas (eds) *Chieftains, Power and Trade: Regional Interaction in the Intermediate Area of the Americas,* Santafé de Bogota: Departamento de Antropología, Universidad de los Andes.

Lechtman, H. (1979) 'Issues in Andean metallurgy', in E.Benson (ed.) *Pre-Columbian Metallurgy of South America,* Washington DC: Dumbarton Oaks Research Library and Collections. 1–4.

—— (1988) 'Reflexiones sobre la metalurgia de las Americas', in E.Reichel (ed.) *Arqueología de las Americas,* Bogota: Banco Popular. 301–6.

Linares, O. (1977) *Ecology and the Art in Ancient Panama—On the Development of Social Rank and Symbolism in Central Provinces,* Washington DC: Dumbarton Oaks Research Library and Collections.

Martínez, A. (1989) 'Un caso de alteración aurífera colonial en el bajo Magdalena', *Boletín Museo del Oro,* 23:47–60.

Mason, A. (1939) *Archaeology of Santa Marta: The Tairona Culture,* Chicago: Field Museum of Natural History Anthropological Series 20 (1, 2 and 3).

Murdock, G.P. and Provost, C. (1980) 'Measurement of cultural complexity', in H.Barry and A.Schlegel (eds) *Cross Cultural Samples and Codes,* Pittsburgh: University Press of Pittsburgh. 147–60.

Pérez de Barradas, J. (1954) *Orfebrería Prehispánica de Colombia-Estilo Calima,* Madrid: Banco de la República.

Plazas, C. and Falchetti, A.M. (1983) 'Tradición metalúrgica del suroccidente Colombiano', *Boletín Museo del Oro,* 14: 1–53. Bogota.

Reichel-Dolmatoff, G. (1986) *Chamanismo y Orfebrería,* Medellín: Editorial Colina.

Renfrew, C. (1972) *The Emergence of Cvilization: The Cyclades and the Aegean in the Third Millennium BC,* London: Methuen.

—— (1986) 'Varna and the emergence of wealth in prehistoric Europe'', in A.Appadurai (ed.) *The Social Life of Things: Commodities in Cultural Perspective,* Cambridge: Cambridge University Press. 141–68.

Rodríguez, C. (1989) 'Patrones de asentamiento de los agricultores prehispánicos de El Limón, Chaparral, Tolima', *Boletín de Arqueología,* 4, 2 :41–50. Bogota.

Rodríguez, C.A. (1989) 'Población prehispánica del valle medio del Río Cauca entre los siglos XVII—XVII DC. Culturas Guabas y Buga', *Boletín Museo del Oro,* 24:73–90.

Roosevelt, A.C. (1979) 'The goldsmith. The Coclé style of ancient Panama', in A.C.Roosevelt and J.Smith (eds) *The Ancestors: Native Artisans of the Americas,* New York: The Museum of The American Indian. 67–102.

Root, W.C. (1963) 'Metallurgy', *The Handbook of South American Indians,* 5:219–26. New York: Cooper Square Publishers.

Rowlands, M. (1971) 'The archaeological interpretation of prehistoric metalworking', *World Archaeology,* 3, 2 : 210–24.

Sallnow, M.J. (1989) 'Precious metals in the Andean moral economy'', in J.Parry and M.Bloch (eds.) *Money and the Morality of Exchange,* Cambridge: Cambridge University Press. 209–31.

Saxe, A.A. (1970) 'Social dimensions of mortuary practices', unpublished doctoral dissertation, University of Michigan.

Schuler-Schoming, I.von (1981) 'A grave-lot of the Sonso', *ProCalima,* 2:25–7.

Scott, D. (1981) 'Metallurgical studies of Calima ornaments', *ProCalima,* 2:22–4.

Serje, M. (1984) 'Organización urbana en Ciudad Perdida', *Cuadernos de Antropología,* 9:1–23.

Service, E. (1960) *Primitive Social Organization—An Evolutionary Perspective,* New York: Random House.

Siegel, S. (1956) *Nonparametric Statistics for the Behavioral Sciences,* New York: McGraw Hill.

Snarskis, M.J. (1984) 'Central America: the lower Caribbean', in F.Lange and D.Stone (eds) *The Archaeology of Lower Central America,* Albuquerque: University of New Mexico Press. 195–232.

Willey, G.R. (1948) 'A functional analysis of "horizon styles" in Peruvian archaeology', in W.C.Bennett (ed.) *A Reappraisal of Peruvian Archaeology,* Menasha: Society for American Archaeology, 4. 8–15.

Chapter Thirteen
Archaeology and historical multivocality
A reflection from the Colombian multicultural context

Cristóbal Gnecco

INTRODUCTION

One of the better known anecdotes in hermeneutics is the famous dialogue on language between Heidegger and a Japanese friend. Heidegger concluded from that experience that the possibility of a dialogue with cultures that are really 'other' is constantly menaced by the Westernisation of the planet and human beings and that the result is a growing deceit that can destroy and silence in its origin whatever is not Western (see Vattimo 1991:151). A similar conclusion has made its mark on anthropology during the last two decades, crystallising in the proposal of interpretative anthropology against the Westernisation of difference through the use of science, and in favour of the preservation of alterity through the scientific deconstruction of the discipline. Although the success of the double approximation of hermeneutics and anthropology (see Rorty 1979; Geertz 1989) in defence of alterity and against the Westernisation of the world has been doubted,[1] the truth is that it has uncovered an elemental fact: alterity is in danger of perishing in the face of the uncontrollable advance of capitalism and its cultural codes at the end of the millennium. The ideological constructions that support the definitive push of late capitalism have been grouped under the label post-modernism, one of whose principal characteristics is the homogenisation of the world and the elimination of all frontiers (e.g. Jameson 1984; Harvey 1990). In regard to historical knowledge, it is necessary to recognise that the West has negated non-Western forms by typologising them, differentiating them from history (history versus myth, history versus tradition), by establishing the supremacy of the written over the spoken, of the chronological and lineal over the non-chronological and circular, of what happened over what should have happened. In summary, it has established the supremacy of 'societies with history' over 'societies without history' (see Rappaport 1990:12). In the words of Lyotard (1994:56):

> Scientists wonder about the validity of narrative [non-scientific] enunciates and corroborate that these are never subjected to argumentation or testing. They classify them as an other mentality: savage, primitive, underdeveloped, behind the times, alienated, formed by opinions, customs, authority, prejudices, ignorance, ideologies. [For them] narrations are fables, myths, legends, good for women and children. In the best of cases they will try to shed light onto obscurantism, to civilise, to educate and to develop.

Scientific hegemony notwithstanding, in these crucial times at the end of the millennium several knowledges about the past confront and repel each other. We are witnessing everywhere a general insurrection of traditionally neglected systems of knowing the past. Thus a reflection about the legitimacy of archaeology in the context of the simultaneous existence of other forms of knowledge about the past is

badly needed. A reflection of this nature, made from the perspective of political economy, must allow one to understand and expose the relations of existing power in each one of the links of the chain of production, circulation and consumption of archaeologically produced knowledge. This paper attempts such a reflection from the case of Colombia, which is exemplary given its multicultural and multi-ethnic character.

THE CONSTRUCTION OF A HEGEMONIC ARCHAEOLOGY

The colonial advance of the West since the last century delegated to anthropology, a newly born discipline, the role of dealing with cultural differences. Even though the colonial uses of anthropology were clearly instrumental, the discipline slowly started to distance itself from its function as a colonial tool and began to construct its disciplinary specificity based upon the understanding and preservation of alterity With these considerations in mind, it becomes necessary to ask why one of its sub-disciplines, archaeology, has built its programmatic agenda since the 1960s from a scientific perspective that has excluded and negated other forms of historical knowledge. Why, in its desire to become a science, has archaeology subjected difference and proclaimed itself as the only form of knowledge capable of establishing the 'truth' about the happenings of the past? In this sense the reflection of Foucault (1980:84–5) is extremely relevant:

> It is surely necessary to question ourselves about our aspirations to the kind of power that is presumed to accompany such a science. It is surely the following kinds of question that would need to be posed: What types of knowledge do you want to disqualify in the very instant of your demand: 'Is it a science?' Which speaking, discoursing subjects—which subjects of experience and knowledge—do you then want to diminish when you say: 'I who conduct this discourse am conducting a scientific discourse, and I am a scientist?' Which theoretical-political *avant garde* do you want to enthrone in order to isolate it from all the discontinuous forms of knowledge that circulate about it?

Western tradition, especially since the nineteenth century, has constructed spaces of exclusion that have allowed it to frame as singular the form of knowing that it has patiently built—science—and to oppose it to other forms of knowing. The process of demarcation and construction of knowledge boundaries has erected hegemonic attitudes and very clear relations of power that have sustained the colonial discourse, past and present. Comte, for example, writing in the first half of the nineteenth century, was categorical in affirming that every human development depends on scientific development, and that the history of science resumes the history of the species. The evolutionist scheme that Comte suggested for knowledge is well known: the 'law of the intellectual evolution of humanity or law of the three stages' (Comte 1995:17–34). Knowledge should have passed through three successive and hierarchical stages: theological, metaphysical and positive. The last, which Comte himself helped so much to rationalise, would be characterised by the predominance of science. It is not gratuitous that he also referred to the positive stage as 'real' (Comte 1995:27); the others, by exclusion, would be 'unreal' stages. It is not difficult to extend the argument to affirm that only the West, with its positive spirit, would have some sense of reality.

Comte's ideas heavily influenced the ethnological discourse that dominated the social sciences up until the first decades of this century. With all its racist and colonial connotations, this discourse considered the 'primitive soul' incapable of reaching the levels of abstract thinking characteristic of science. This is a posture that begins with the evolutionists, for whom science, the landmark of civilisation, would show primitive people the irrationality of their magical and mythical beliefs. But it would be Levy-Bruhl (1974) and Frazer (1993) at the end of the nineteenth and in the early years of the twentieth century who would introduce a hierarchical order in the systems of knowledge: for the former, primitive mentality was

incapable of rational thought given its pre-logic superstition, while for the latter, magic corresponded to lower cultures and science and religion to higher ones. This discourse, that Feyerabend (1985:87) has labelled the 'ptolemaic vision of ethnology', located primitive thought in an inferior and subordinated position with respect to abstract thought, science. Primitive thought was considered as a sort of very poorly developed initial abstraction, and was located at the beginning of an evolutionary scale of the human condition that started with elemental abstraction, the primitive, and ended with total abstraction, the scientific (see a good example of this position in Cassirer 1970). Malinowski introduced an anti-colonial stance in the differentiation of the systems of knowledge. In a famous study first published in the middle of the twentieth century, he suggested that magic, science and religion coexist in all cultures, irrespective of their level of development, and that, therefore, science is not an exclusive patrimony of the West, and neither is it possible to establish an evolutionary scheme for knowledge (Malinowski 1985). This idea was developed later by Lévi-Strauss (1966), who showed that primitive thought is not underdeveloped science but a system of knowledge as abstract as science itself and coexistent with it. Lévi-Strauss considered primitive and Western thought not as representing the extremes of a continuum but as different ways of knowing.

The colonial posture of anthropology must be seen in the wider context of Westernisation (a phenomenon that has become known in recent years as globalisation):

> Westernisation occurs first of all at the level of the expansion of political domination, and especially at that of the diffusion of cultural models. This political and cultural aspect, however, is accompanied by another more scientific and methodological one: the fact that so-called primitive societies are regarded as the objects of a kind of knowledge that is completely dominated by 'Western' categories…it is only through the use of these profoundly Western categories that anthropology becomes science, or, put another way, a part of the metaphysical enterprise of reducing the world to a measurable object-ness.
> (Vattimo 1991:152).

This is a similar idea to that of Nader (1996), for whom the anthropological study of science, magic and religion established boundaries between them and, by doing so, relations of power: science was seen as the sublime form of abstract thought. That is, anthropology contributed the creation of boundaries to the subordination of alterity and, eventually, to its disappearance.

However, this debate does not belong exclusively to anthropology. Gellner (1985:2–3) has shown how the central debate of the contemporary world can be summarised in the confrontation between those who believe that reason and science (*our* reason and *our* science) are universal (from the Enlightenment, through the evolutionists and ending with the immense majority of contemporary scientists), and those who believe, like the romantics of the eighteenth century and a good number of contemporary anthropologists, that the presumption that our reason and our science are the norm for all humankind is vain and unjustified (see a documented and vehement defence of the latter in Feyerabend 1985, 1995). It is clear, however, that it has been anthropology, as the discipline in charge of dealing with alterity, which has invested more time and effort in researching the purported difference between Western and non-Western knowledge systems. Although some anthropologists, like Malinowski and Lévi-Strauss, adopted anti-evolutionist positions, it is undeniable that anthropology has contributed the most to the demarcation of science and to the establishment of the boundaries on which the West has founded its hegemony. In this sense anthropology has been instrumental in effectively excluding other forms of knowledge:

> What is it about boundaries that makes them important to power relations? A style favoured by contrast includes some things, excludes others, and creates hierarchies privileging one form of

> knowledge over another… Borders are contentious, and as any scientist knows, science is not a revealed and unambiguous truth—today's science may be tomorrow's pseudo-science or vice versa… boundary battles about what to include and what to exclude are often arbitrary, rarely neutral, and always powerful.
>
> (Nader 1996:2–4).

The pretension of archaeology in becoming a science has not been a politically neutral epistemological purpose, because the establishment of a boundary between what is scientific and what is not presupposes exclusion and creates hegemonic spaces. In this way, the praxis of archaeology has become a hegemonic exercise which has contributed to the Westernisation of the world. However, in recent years several scholars have been claiming that if the disciplinary legitimacy of archaeology (as a part of anthropology) rests on the understanding and on the defence of alterity, then it has to reflect critically upon its relation with other forms of historical knowledge. This reflection must be made in a double context: on one hand, the intent of multinational capitalism, supported by the cultural logic of post-modernism, for homogenising cultural behaviours world-wide; and, on the other, the contra-cultural response to postmodernism, that accentuates the differences through insubordination. It is precisely in this last context where the appearance of non-Western historical voices has occurred, founding spaces of legitimisation that have put archaeology up against the wall.

The homogenising Western agenda attempts to impose everywhere its cultural models as the only possible and desirable options. It tries to implant the cultural models of capitalism the world over, even in those former pre-capitalist enclaves that have been previously ignored, such as mind and nature (Jameson 1984). The expansion of science at a world level has occurred in the framework of the brutal capitalistic expansion of the end of the millennium, expansion that has been founded on the Western (that is, capitalist and liberal) principles of free enterprise, democracy and tolerance. Likewise, scientific archaeologists are completely convinced that only through archaeology can a supposed trans-cultural and trans-historical 'truth' about the past be reached. That is why they have spread the truth of their faith in the framework of the democratic principles of liberalism: only the truth of archaeology will help dissipate the obscurantism about the past. From this perspective, obscurantism has been built and sustained by all non-scientific historical systems, from myths to so-called pseudo-science. Obviously, this hegemonic attitude is openly against alterity and clearly homogenising.

Even though cultural relativism has been one of the corner-stones of anthropological thought and one of the basic practices of disciplinary formation, it is a paradox that archaeologists, together with the immense majority of anthropologists, do not ask themselves about the legitimacy of their own discourse, which frequently excludes the discourses of others, no matter that it pretends to understand them. Our world is constructed on the basis of this exclusion which has slowly incorporated and modelled other worlds, due to its capacity for political domination and the efficiency of its cognitive devices and cultural models. The exclusion of other discourses by the Western hegemonic discourse calls into question the very essence of cultural relativism. Thus it becomes essential to inquire about cultural relativism in the double context of postmodern homogenisation and the resulting insubordination of knowledges. In doing so it is necessary to adopt an 'ecological' perspective in archaeology, to examine archaeological knowledge in a contextual manner and not isolated from social reality in the positivist sense. As Nader (1996:3) argues:

> Western science is generally considered an autonomous activity—separate from social, political, or economic contexts, and even, separate from technology. Science decontextualised becomes privileged, dressed up, understood by its ideology rather than its practice, lacking in reflexivity.

An exploration of this order must uncover the relations of power inscribed in the processes of production, circulation and consumption of archaeological knowledge. It is not sufficient to try to understand historical conceptions different from our own but to understand how the latter has been constructed and how it has been produced, circulated and consumed. Even though it can be said that archaeologists have been conscious for many years of the fact that their discourse is socially mediated, this consciousness was timid and not far-reaching. Recent work (e.g. Hodder 1986, 1992; Shanks and Tilley 1987a, 1987b), however, has adopted a critical stance and recognised that archaeology does not produce value-free interpretations; in this sense, every archaeological practice is political practice. In fact, knowledge arises from the practical activity of human beings acting in historically determined social contexts. This is unavoidable. In this sense, knowledge is not only socially produced but is, in essence, practice; and this is so whether archaeologists are conscious of it or not.

Knowledge about the past, whatever this may be, is produced in specific social contexts. Archaeological knowledge is only one form of knowledge about the past, as socially produced as any other. Given this socio-historic dimension of its production, archaeology cannot be considered as more exact, valid or legitimate than other types of historical knowledge. Obviously, though, this notion of social production of knowledge is not only applicable to science. It must also be applied to the production of knowledge of subordinate groups. The production of knowledges that circulate and are consumed in specific social collectives entails a closed circuit with a logic, a truth and a form of legitimacy of its own. Just as it has been questioned that science has a 'truth' that it tries to defend and legitimise, it also must be recognised that myths, for example, also have a 'truth' that people try to defend and legitimise. The problem should not be, then, the existence of 'truth'—which nevertheless exists, and which is culturally dependent and historical—but the fact that it is sometimes imposed trans-culturally. What stands against alterity is the hegemonic exercise of truth and not its very existence, which is unavoidable:

> truth isn't outside power, or lacking in power…truth isn't the reward of free spirits, the child of protracted solitude, nor the privilege of those who have succeeded in liberating themselves. Truth is a thing of this world: it is produced only by virtue of multiple forms of constraint. And it induces regular effects of power. Each society has its regime of truth, its general politics of truth: that is, the types of discourse which it accepts and makes function as true; the mechanisms and instances which enable one to distinguish true and false statements, the means by which each is sanctioned; the techniques and procedures accorded value in the acquisition of truth; the status of those who are charged with saying what counts as true.
>
> (Foucault 1980:131)

Due to the insubordination of historical knowledges the world over which reject the hegemonic stance of science and defend alterity, archaeology can no longer be considered the only valid and legitimate way of knowing the past; rather, it has to be seen as just one among several pastproducing systems. This is especially true in a multicultural country such as Colombia, where several national minorities have revitalised their traditional historical conceptions as part of a cultural and political strategy of legitimisation.

HISTORICAL MULTIVOCALITY IN COLOMBIA

The current Colombian constitution, drafted in 1991, consecrates what in practice was an undeniable fact that had already produced many varying results: the multicultural nature of the country. Given that most of

the different minorities recognised by the constitution are native communities, it is clear that their recognition simultaneously carries the recognition of different legal, medical and historical systems. Moreover, given that in native cosmovision a conceptual separation between time and space does not exist (see Rappaport 1990), the resurgence of subordinate groups is not limited to land claims, as the Colombian state wants us to believe, but includes the recovery of historical time. In this sense, I schematically show the current situation of four different historical voices in Colombia: archaeology and three ethnic minorities, the Paeces and Yanaconas, both of whom live in the southwestern Andes, and the Cubeos, from the Colombian Amazon. These three ethnic voices have been chosen from various others because of the strength of their historical projects—both in terms of construction and reconstruction—and the political consequences these projects have entailed.

The Paéz people live, for the most part, in a rugged part of the southwestern Andes known as Tierradentro, between the Departaments of Cauca and Huila. After centuries of self-neglect and permissive attitudes towards the state and colonists of all sorts, in 1971 the Paéz helped form the Consejo Regional Indígena del Cauca (CRIC), a powerful and broad-based Indian organisation whose political agenda includes, among other things, the defence of Indian history (CRIC 1983:5), which is basically encapsulated in myths and in sacred geography This kind of history has proved to be crucial in the settlement of land disputes, political agreements, arguments over inheritance, and in the strengthening of a communal identity basic for facing hegemonic groups (Rappaport 1990:9–11). Although Paéz history, situationally constructed and reconstructed over and over again by enunciators and receptors, is not historical in a Western sense (it is nonnarrative, non-chronological, non-explicative, and lacks empirical support), for Rappaport (1990:13–14):

> This alternative means of representing temporal process is no less historical than our own written narrations although it does not submit to the same canons. By disassociating them from 'history' because they do not conform to our own preconceived standards of the historical enterprise, we do not explain these histories, we only classify them.

Moreover, the fact that the authority of Paéz historical discourse lies in the social sanctioning of the situation in which it is recalled (that is, reconstructed) makes any claim to empirical sufficiency immaterial:

> The chains of transmission of the Paéz historical vision permit the drawing of a moral continuity between the precolumbian inhabitants of Tierradentro and the twentieth-century population that lives there… Whether or not they are the same group as fought the Spaniards in 1572 is immaterial: what matters is that they perceive the link as existing, and have fashioned their ideology so as to legitimise it.
>
> (Rappaport 1990:18)

Another example of historical insubordination is that of the native community of Piramirí, who live along the Caño Cuduyarí in the Colombian Amazon, and belong to the Cubeo group. A few years ago this group started a historical reconstruction aimed at legitimising their presence in the national arena:

> We use our experience in transforming the image 'white' people have of ourselves through the strengthening and validation of our culture… In doing so it is extremely important to validate the history of our forebears, because it shows us our place in the world…together with the old people we have begun researching our history in order to infuse in our young and children a true understanding of our culture; that our culture and its traditions are as important as any other culture in the world…being

> conscious that our history is as good as the others we are going to value community life and family, because the young don't like their homes and believe in a single and good 'white civilisation'.
>
> (Comunidad de Piramirí 1989:43–6)

There are also alternative histories built around a great deal of ethnogenesis. Such is the case of the Yanacona, who live in the Macizo Colombiano (Departament Cauca), and who number some 20,000 people. Until the mid-1980s the Yanacona were peasants with no ethnic identity, struggling for survival in a former Indian territory, colonised since the sixteenth century, and broken up for over one hundred years. In 1985, in the midst of heavy territorial conflict and diminishing resources, community leaders started crafting the means for political legitimacy and autonomy and for regional unity. Although the inhabitants of the Macizo vaguely recognised themselves as Indians, a clearer ethnic identity was lacking. The missing element was provided when it was suggested that the construction of ethnic identity could revolve around a purported 'Yanaconidad', that is, an ethnic identification with the colonially documented Yanas, a group of natives from the Central Andes that the Spanish conquerors brought to southern Colombia as porters. The idea, quickly adopted at the grass-roots level through workshops, seminars and broad-based meetings, was aimed at creating and disseminating a sense of ethnic belonging based on the construction and reconstruction of cultural references (see Zambrano 1993): 'But the real educational aspiration was our own education, to "yanaconize" the Yanacona: that is, a formation in harmony with community values and aspirations' (Comunidad Yanacona 1996:38). Thus, while extant cultural practices such as communal work and maize farming were adopted as part of the Yanaconidad, sometimes reconstructing them wherever they had been lost or weakened, other aspects had to be worked out basically from scratch. Such is the case with history. In fact, although mythical thought had all but disappeared from the Macizo, connections could be claimed with other cultural traditions of the southwestern Andes of Colombia in terms of historical referents and discursive means. In this regard, the main task was the homogenisation of historical differences within the territory, a process still in the making. In a collective work (Comunidad Yanacona 1996) we find the following statements: 'History is a process of identification. The Yanacona history that we must make is to identify ourselves again with that which is ours'; and '[we must] unify historical criteria for the Yanacona people… A workshop is required for unifying Yanacona history.'

While all this historical insubordination is occurring and finding increasing space for legitimisation, archaeology has followed a rather naive and socially detached course, due to its hyperempirical background. Archaeology in Colombia was born in 1941, when French ethnologist Paul Rivet founded the Instituto Etnológico Nacional, crafting an empirical discipline out of the pre-positivist European anthropology in which he had been trained (see Gnecco 1995; Jaramillo and Oyuela 1994). Although the political agenda of the Instituto was overtly democratic, Rivet and his followers guided the incipient discipline through an academic position, distant from the social milieu. The approach to otherness was aseptic and centred in the past: indigenous groups (and later Afro-Colombians and mestizos) were considered merely as historical subject matter and their material production—but only their material production—became part of national tradition (the world-famous Museo del Oro, for instance, was established in 1939). As such, Colombia's indigenous ancestry, supposedly resurrected through archaeological excavations, was alienated from its contemporary reality. Indigenous peoples were part of the past of the nationstate through their aesthetic accomplishments, but contemporary indigenous groups were denied that privilege. The search for the other was fastidiously removed from the search for the self. As Lorenzo (1981:197) has stated, this Manichaeism led to the construction of an absent/present indigenous tradition in most American national identities, and this practice (that is, the making of a 'pure' archaeology

alien to the very subjects it was studying) led to the consecration of a sort of archaeological colonialism. This colonialism is well described by Trigger (1980:671):

> archaeologists have chosen to use data concerning the native peoples…for ends that have no special relevance to these people. Instead, they are employed in a clinical matter to test hypotheses that intrigue professional anthropologists and to produce knowledge that is justified as serving the broader interests of Euroamerican society.

Although a few scholars from the twentieth century, notably Uricoechea (1984), praised the pre-Hispanic indigenous past and even considered it as one of the corner-stones of Colombian identity, the mainstream of opinion was either a romanticised perception of the indigenous past (a trend that pervaded the arts until the first half of the twentieth century), or an open disregard for the indigenous and Afro-Colombian heritage. The dismissal of non-Spanish ethnic groups was part of official ideology. As in many other Latin American countries, Colombian aristocracy, and later, the incipient bourgeoisie, built their identities, made national through ideological constructs, on the exclusion of subordinated ethnic groups.

Colombian archaeologists of the younger breed (from the 1970s onward), trained abroad for the most part, have also unthinkingly reproduced hegemonic practices, this time with an accent on science. The result has been the same as that of their academic forebears: a clinical distance from the social order and an attempt (a desire) to produce objective, pure knowledge in the most dogmatic positivist guise. An analogy is in order: young members of the sixteenth-century Cuna élite from Panama were trained in power centres abroad in order to introduce them into a social order that stressed inequality by restricting access to foreign goods and knowledge (Helms 1979). Political power in Cuna society rested on the manipulation of esoteric knowledge by members of the élite. Power and knowledge were inextricably linked, and young members of the Cuna élite reproduced a political discourse learned in metropolitan centres.

Although the symbolic representation of the *país mestizo* (mestizo country) has in the twentieth century largely replaced a Colombian identity based exclusively on the Spanish heritage—a phenomenon tied to the appearance of a bourgeoisie of a wider social background and economic interests—the production of historical knowledge by Colombian archaeologists has had minimal impact on the formation of a national identity based on the simple acknowledgement of a multiethnic, multicultural state (for discussion, see Pineda 1984; Friedemann 1987; Melo 1989). Although archaeologically produced knowledge was officially adopted in high school textbooks in the 1980s, and although the last twenty years have witnessed a growing popular involvement with politics—including an expanded awareness of the role of symbolic representations—the popular imagination of the Colombian past still begins with mute pre-Hispanic statues and bearded Spaniards. Such a situation is partially due to Colombian archaeologists not being concerned with establishing links between academics and the rest of society.

Colombian archaeology has been clearly hegemonic by effectively denying other historical voices and by claiming the only right to the truth, as if truth were not situational and contextdependent. Archaeologists in Colombia have ignored the social context of their historical production and, therefore, the political economy of their praxis. It is not a coincidence that the production of archaeologists, which normally circulates in narrow academic spaces, is only understood by other archaeologists. In fact, although archaeology pretends to be the best way of studying the past (the most powerful, legitimate, valid, exact), it is paradoxical that its circuit of production-circulation-consumption is so restricted and small. Given that, in Colombia, state manipulation of archaeological production is negligible compared to that of other countries (see numerous references in this regard in Trigger 1989; Kohl and Fawcett 1995), past and present, Colombian archaeology is a good case of an archaeology for archaeologists. That is why some archaeologists are

socialising archaeological production through pamphlets, the media (television, newspapers, magazines), broad-based talks, workshops, and school curricula. In contrast, indigenous historical visions encapsulated in myths (traditionally typologised as fiction and despised as non-historical) have much wider circuits of production-circulation-consumption than archaeology itself. Those visions circulate among entire communities, sometimes numbering thousands of people, which consume an historical product ostracised by Western standards. Thus it is clear that in the same political-administrative space of contemporary Colombia several historical voices face each other. Can a 'dialogue' between archaeology and these other historical knowledges be established? Or should they just grow side by side without interfering with each other?

A DIALOGUE BETWEEN PAST-PRODUCING SYSTEMS?

In recent years it has frequently been said that a 'dialogue' between knowledges about the past is not only desirable but possible; in other words, different knowledges would be reconciled, instead of one being imposed hegemonically over the other (see several papers in Biolsi and Zimmerman 1997; Schmidt and Patterson 1995; Swidler *et al.* 1997). This would appear to be a post-colonial stance and presupposes that a different, mixed, stronger, and more tolerant voice will result from this 'dialogue'. It is evident that archaeologists are increasingly trying to take into account the native point of view of the past. However, the majority of archaeologists have not done so in order to accept the legitimate existence of other past-producing systems, but to obtain substantial gains for themselves that help to further homogenisation and to neutralise difference. Instead of allowing insubordination and the affirmation of alterity, the rhetoric of conciliation arises: dialogue instead of confrontation, homogenisation instead of difference. The 'dialogue' propagated by some archaeologists results in the neutralisation of non-Western knowledges about the past. The recolonisation of insubordinate knowledges by the hegemonic discourse is always a latent possibility:

> And, after all, is it not perhaps the case that these fragments of genealogies are no sooner brought to light, that the particular elements of the knowledge that one seeks to disinter are no sooner accredited and put into circulation, than they run the risk of re-codification, recolonisation? In fact, those unitary discourses, which first disqualified and then ignored them when they made their appearance, are, it seems, quite ready now to annex them, to take them back within the fold of their own discourse and to invest them with everything this implies in terms of their effects of knowledge and power.
>
> (Foucault 1980:86)

It is illustrative that North American archaeology, which has always been extremely hegemonic and academic, now finds itself in a conciliatory position, openly calling for a dialogue with native conceptions of the past. In the same vein, it is paradoxical that some North American indigenous groups (subjected and mistreated for years, among other things, by the 'findings' of archaeologists) have bought the idea and now speak of all that different discourses, such as scientific archaeology and myth, can learn about the past if they are tolerant and open-minded. This posture is unthinkable by the very same people who attacked archaeologists until not long ago for their historical association with hegemonic and racist colonial regimes (see Trigger 1980, 1990):

> Some of what I can gather as hard feelings from the Indian point of view stem back to the position that the scholarly community has enjoyed for the past century, i.e., that only scholars have the credentials to define and explain American Indians and that their word should be regarded as definitive and

> conclusive… We have been the objects of scientific investigations and publications for far too long, and it is our intent to become people once again, not specimens… Archaeology has been a suspicious science for Indians from the very beginning. People who spend their lives writing tomes on the garbage of other people are not regarded as quite mentally sound in many Indian communities. And to define Indian civilisations by watching the change of pottery styles as archaeology once did is not exactly a process of compiling irrefutable knowledge; it is mere White man speculation and fiction and should be regarded as such.
>
> (Deloria 1992:595–6)

We are exceptional witnesses, at the end of the millennium and amidst post-modernism, of the idea that the scientific conception of the past can benefit from non-Western traditions and vice versa. This would be a collaboration that would put an end to so many years of negation and hegemony (e.g. Swidler *et al.* 1997). For instance:

> One project that might be considered in the decades ahead would be a cooperative effort between archaeologists and interested Indians to rework and restate the findings of major importance in terms and language that eliminates cultural bias and attempts to give accurate summary of what is known.
>
> (Deloria 1992:598)

This carries with it the tacit acceptance that for the natives scientific archaeology has levels of mythical 'historicity', or that for archaeologists myths can be proved to be scientifically 'correct'. But it is truly immaterial if myths are 'correct' or not from a scientific point of view; by the same token, it is immaterial if archaeology is 'correct' from a mythical point of view. To pretend to find historical 'truths' in myths is a recolonisation, the subduing of a non-scientific historical knowledge through its conversion into discursive codes as they are perceived by archaeologists. This recolonisation is a new typology, as myths appear as 'historical' only if they contain truths that archaeologists already know or can get to know. To pretend that myths are useful for archaeology because they can contain 'historical' truths is no more than the utilisation of an ancestral discourse, but it will never be a dialogue. In the best scenario an archaeological use of myths is a purely academic exercise. How crucial can it be for native groups that Western scholars tell them that their myths actually contain empirically verifiable facts and that they, therefore, are partially true, historically true? I am afraid that this 'discovery' would only be relevant for any native group under the assumption that it shares Western notions of historicity, truth, and empiricism. It would require the audience to have Western conceptual schemes; it would require the audience to not be indigenous.

The most illustrative case in this sense in Colombia is the work of Osborn (1985) among the U'wa, a contemporary native group living in the eastern Andes. Osborn set out to 'identify the residential pattern of different U'wa groups and to find their archaeological sites' (Osborn 1985: 18). In doing so she used part of a myth, the 'Flight of the Swallow Tailed Kite'. After patient analysis, consulting old shamans, and field trips, Osborn concluded, among other things, that the myth refers to actual places, to clearly located archaeological sites. The U'wa myth has, according to her interpretation, levels of historicity. But historicity for whom? Clearly not for the U'wa but for archaeologists, who find the myth useful in locating archaeological sites. This exercise can hardly be called a 'dialogue' of knowledges; rather, its current popularity is due to an attempt to break free from the dogmatic functional adaptationism of hard-core processualism, following an idea formulated by Vogt (1956:181, as cited in Brady 1997:602) decades ago:

> Finally, I would raise a general theoretical question which I do not believe has been resolved on the basis of existing research. This question concerns the extent to which cultural beliefs and values (features which are difficult to infer from archaeological remains) may affect settlement patterns in a manner that appears to override considerations of ecological or economic adjustment. We know that certain obvious limits are imposed by ecological and economic patterns; yet within these limits certain beliefs, for example, may affect the situation one way or another.

Archaeologists have not paid attention to myth in order to understand it on its own terms, but to determine its historicity and its utility to archaeology. The need of some subordinate groups with non-Western historical systems to oppose their version of history to the dominant version has led them to fit their history into Western discourse. This process has been called 'chronicles of the impossible' by Salomon (1982): a circular, non-chronological discourse helplessly trying to adopt a narrative, lineal and chronological one. The obvious outcome is silence:

> As always, the defeated fail to make themselves clear. They necessarily speak partly through ideas and myths not their own, and partly through those that are too much their own to be readily conveyed in a foreign vehicle. Unlike any kind of writing generated inside one cultural tradition, the writing of the defeated tries to speak through two qualitatively different systems of thought at the same time… Only the defeated writers make insolubility their home ground.
>
> (Salomon 1982:32–3)

This dialogic impossibility has to be understood from the perspective of discourse analysis. Following Lyotard (1994), scientific and narrative (non-scientific) discourses are incommensurate[2] and antithetical. Scientific discourse demands the exclusivity of language; it is an indirect component of the social world and creates professions and institutions; it clearly prescribes the positions of enunciator and receptor; the authority of the content resides in the enunciator; the truth of statements is established through tests of empirical sufficiency; its temporality is diachronic (past, present and future occupy different temporal fields). In contrast, non-scientific discourse admits a plurality of languages; it is a direct and immediate component of the social world, belonging to society as a whole and not only to a few individuals; narrative positions are not exclusive; the authority of the content does not reside in the enunciator only but in every receptor; the truth of statements requires social sanction only; its temporality is not linear but circular (past, present and future do not occupy different temporal fields; see Lyotard 1994:43–56).

Each discourse contains elements that make it intelligible only to members of the same cultural tradition and, simultaneously, unintelligible to members of other cultural traditions. Moreover, the elimination of discursive obstacles—the structural characteristics of discourses—can only achieve the elimination of discursive content (see Salomon 1982). In fact, discourses are closed circuits of production, circulation and consumption. This multiplicity of closed circuits would not be problematic in an infinite space in which they would not interfere with each other, but that is an unrealisable utopia in the social realm, especially in the post-modern condition of supranational capitalism. It is in post-modernism, more than in any other time in human history, that the circuits touch, penetrate and repel each other. In this scenario the incommensurability of discourses gives way to *de facto* negations, to impositions of one discourse over another;[3] in this scenario 'dialogue' is a fiction, a Western mechanism of neutralisation. Dialogue is not only a discursive impossibility—a political argumentation against it should also be made. Such dialogue is a threat in post-modernity's homogenising project; it attacks alterity, it does not preserve it. In contrast, a

legitimate contra-cultural answer to post-modernism is the preservation of all differences and the construction of a possible world in which differences can be taken as the basis of human understanding.

A WAY OF ENDING TOWARDS A BEGINNING

We have to recognise that we are talking about different and incommensurate knowledges of the past. In which case, is dialogue possible? I think the answer must be no, because these knowledges are encapsulated in structurally incompatible discourses, and because the 'dialogue', as it has been proposed, is only conducive to Western standards of historicity and is, therefore, against alterity. The only acceptable 'dialogue' between different knowledges would be the mutual recognition of their existence. Fusion of the different knowledges of the past would contribute only to the homogenisation of the world, a purely Western agenda. The independent and simultaneous existence of different knowledges could challenge post-modern homogenisation, and can only be guaranteed within their own circuits of production, circulation and consumption. Any other option erases alterity altogether and allows the definitive Western colonisation of world differences.

Reflection on this process in the institutional realms in which archaeological knowledge is produced and reproduced is essential. In this way archaeological praxis will not militate against alterity and will become part of a broad cultural critique against the 'universal' models of postmodern capitalism.

REFERENCES

Biolsi, T. and Zimmerman, L.J. (eds) (1997) *Indians and Anthropologists: Vine Deloria Jr. and the Critique of Anthropology,* Tucson: University of Arizona Press.

Brady, J.E. (1997) 'Settlement configuration and cosmology', *American Anthropologist* 99:602–18.

Cassirer, E. (1970) *An Essay on Man: An Introduction to a Philosophy of Human Culture,* New Haven: Yale University Press.

Comte, A. (1995) *Discurso sobre el Espíritu Positivo,* Barcelona: Altaya.

Comunidad de Piramirí (1989) 'Nuestra historia es tan buena como las otras', *Arqueología* 10:42–7.

Comunidad Yanacona (1996) *Yanacanay: en Busca del Camino Real,* Bogota: Instituto Colombiano de Antropología.

Consejo Regional Indígena del Cauca (CRIC) (1983) *Cómo nos Organizamos,* Popayán: Consejo Regional Indígena del Cauca.

Deloria, V. (1992) 'Indians, archaeologists, and the future', *American Antiquity* 57:595–8.

Feyerabend, P.K. (1985) *Por Qué No Platón?,* Madrid: Tecnos.

—— (1995) *Adios a la Razón,* Barcelona: Altaya.

Foucault, M. (1980) *Power/Knowledge: Selected Interviews and Other Writings,* New York: Pantheon.

Frazer, J.G. (1993) *La Rama Dorada,* Bogota: Fondo de Cultura Económica.

Friedemann, N. (1987) 'Antropología en Colombia: después de la conmoción', *Revista de Antropología* 3: 133–55.

Gadamer, H.G. (1981) *La Razón en la Epoca de la Ciencia,* Buenos Aires: Alfa.

Geertz, C. (1989) *La Interpretación de las Culturas,* Barcelona: Gedisa.

Gellner, E. (1985) *Relativism and the Social Sciences,* Cambridge: Cambridge University Press.

Gnecco, C. (1995) 'Praxis científica en la periferia: notas para una historia social de la arqueología colombiana', *Revista Española de Antropología Americana* 25, 9–22.

Harvey, D. (1990) *The Condition of Postmodernity: An Inquiry into the Origins of Cultural Change,* Oxford: Blackwell.

Helms, M.W. (1979) *Ancient Panama: Chiefs in Search of Power,* Austin: University of Texas Press.

Hodder, I. (1986) *Reading the Past,* Cambridge: Cambridge University Press.

—— (1992) *Theory and Practice in Archaeology,* London: Routledge.

Jameson, F. (1984) 'Postmodernism, or the cultural logic of late capitalism', *New Left Review* 146:53–92.
Jaramillo, L.G. and Oyuela, A. (1994) 'Colombia: a quantitative analysis', in A.Oyuela (ed.) *History of Latin American Archaeology,* Aldershot: Avebury. 49–68.
Kohl, P.L. and Fawcett, C. (1995) *Nationalism, Politics and the Practice of Archaeology,* Cambridge: Cambridge University Press.
Lévi-Strauss, C. (1966) *The Savage Mind,* Chicago: University of Chicago Press.
Levy-Bruhl, L. (1974) *El Alma Primitiva,* Barcelona: Peninsula.
Lorenzo, J.L. (1981) 'Archaeology south of the Río Grande', *World Archaeology* 13:190–208.
Lyotard, J.F. (1994) *La Condición Postmoderna,* Madrid: Cátedra.
Malinowski, B. (1985) *Magia, Ciencia y Religion,* Bogota: Planeta-Agostini.
Melo, J.O. (1989) 'Etnia, region y nación: el fluctuante discurso de la identidad (notas para un debate)' in *Memorias del V Congreso de Antropología en Colombia,* Bogota: ICFES. 27–48.
Nader, L. (1996) 'Anthropological inquiry into boundaries, power, and knowledge', in L.Nader (ed.) *Naked Science,* London: Routledge. 1–25.
Osborn, A. (1985) *El Vuelo de las Tijeretas,* Bogota: Fundación de Investigaciones Arqueológicas Nacionales.
Pineda, R. (1984) 'La reivindicación del Indio en el pensamiento social colombiano (1850–1950)', in J.Arocha and N.Friedemann (eds) *Un Siglo de Investigación Social: Antropología en Colombia,* Bogota: Etno. 197–251.
Rappaport, J. (1990) *The Politics of Memory: Native Historical Interpretation in the Colombian Andes,* Cambridge: Cambridge University Press.
Rorty, R. (1979) *Philosophy and the Mirror of Nature,* Princeton: Princeton University Press.
Salomon, F. (1982) 'Chronicles of the impossible: notes on three Peruvian indigenous historians', in R.Adorno (ed.) *From Oral to Written Expressions,* Syracuse: New York State University (Latin American Series 4). 9–40.
Schmidt, P.R. and Patterson, T.C. (eds) (1995) *Making Alternative Histories: The Practice of Archaeology and History in Non-Western Settings,* Santa Fe: School of American Research Press.
Shanks, M. and Tilley, C. (1987a) *Social Theory and Archaeology,* Albuquerque: University of New Mexico Press.
—— (1987b) *Re-Constructing Archaeology: Theory and Practice,* Cambridge: Cambridge University Press.
Swidler, N., Dongoske, K.E., Anyon, R. and Downer, A.S. (1997) *Native Americans and Archaeologists: Stepping Stones to Common Ground,* Thousand Oaks: Alta Mira Press.
Trigger, B. (1980) 'Archaeology and the image of the American Indian', *American Antiquity* 45:662–76.
—— (1989) *A History of Archaeological Thought,* Cambridge: Cambridge University Press.
—— (1990) 'The 1990s: North American archaeology with a human face?', *Antiquity* 64:778–87.
Uricoechea, E. (1984) *Memoria sobre las Antiguedades Neo-Granadinas,* Bogota: Banco Popular.
Vattimo, G. (1991) 'Hermeneutics and anthropology', in G.Vattimo (ed.) *The End of Modernity: Nihilism and Hermeneutics in Postmodern Culture,* Baltimore: Johns Hopkins University Press. 145–63.
Zambrano, C.V. (ed.) (1993) *Hombres de Páramo y Montana: Los Yanaconas del Macizo Colombiano,* Bogota: Instituto Colombiano de Antropología.

NOTES

1. 'Although it [hermeneutics] tries to see anthropology as the discourse of radical alterity, anthropology in fact can no longer be interpreted as a locus of alterity, and defines itself instead as an internal aspect of the general process of Westernisation and homologation' (Vattimo 1991:156).
2. 'Science has emancipated itself from language by developing its own system of designation and symbolic forms of presentation which cannot be translated any longer to the language of ordinary conscience' (Gadamer 1981: 17).
3. A good case in point is the imposition of the national judicial discourse over subordinate groups with their own legal-moral system when one of their members demonstrates behaviour typified as illicit by the national state. As in the case I am analysing, while the legal circuits of production-circulationconsumption do not interfere with

each other the national state does not intervene; when they interfere with each other the national state imposes its own legal system to the exclusion of the system of the subordinate group.

Index